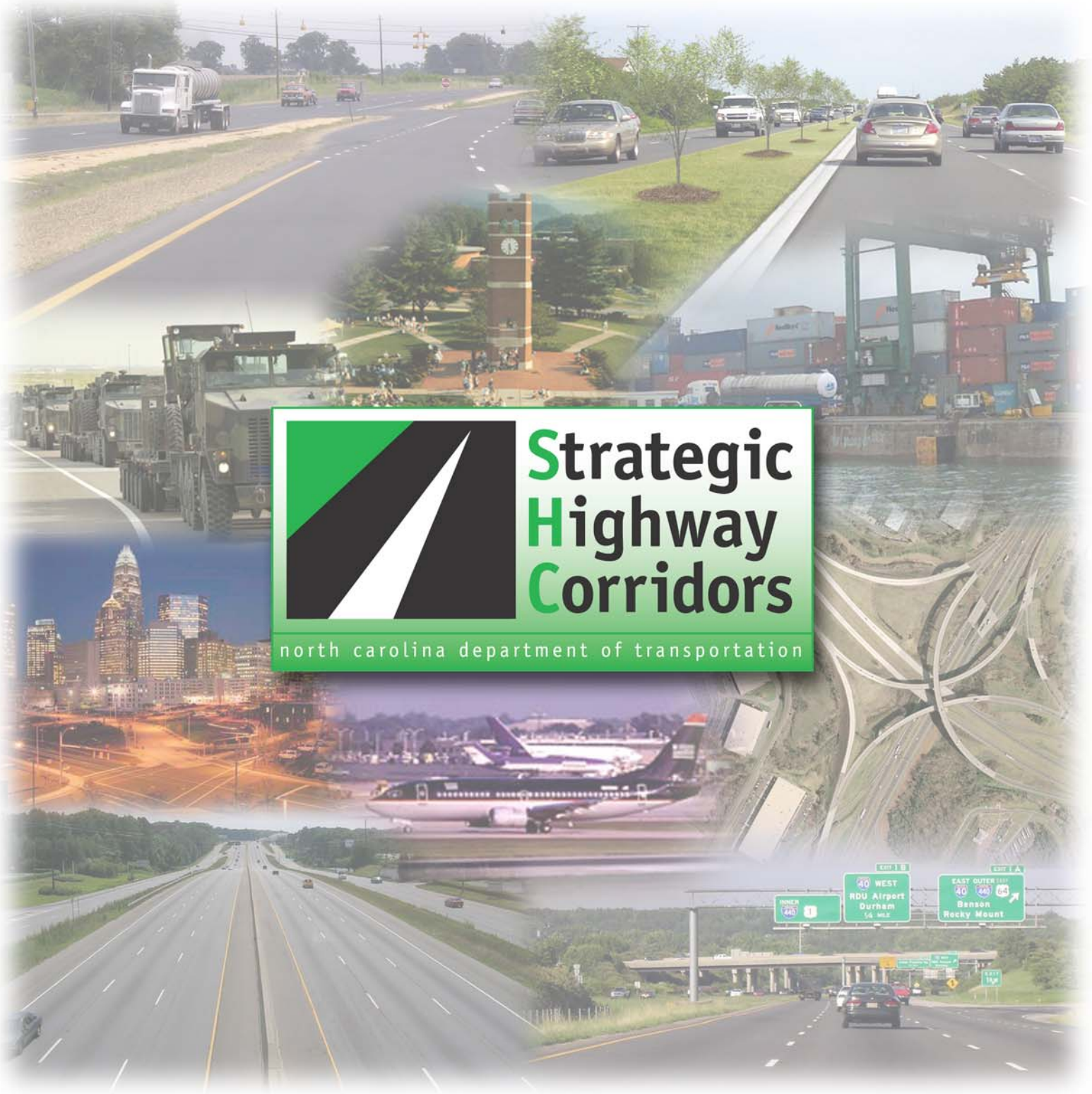


# CONCEPT DEVELOPMENT REPORT



TRANSPORTATION PLANNING BRANCH  
OCTOBER 2005





# THE STRATEGIC HIGHWAY CORRIDORS CONCEPT DEVELOPMENT REPORT

Prepared by:



North Carolina Department of Transportation  
Transportation Planning Branch

October 2005

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## Executive Summary

North Carolina has changed dramatically over the last 20 years and will continue to do so well into the 21<sup>st</sup> century. Change in travel patterns, increase in population and vehicle miles traveled, and burgeoning domestic and international trade are all putting additional strains on North Carolina's transportation system. In an renewed effort to enhance and preserve the backbone of the state's highway system, the Department of Transportation (NCDOT) in collaboration with the Department of Commerce (NCDOC) and Department of Environment and Natural Resources (NCDENR) created the Strategic Highway Corridors (SHC) concept. The SHC concept represents a timely initiative to protect and maximize the mobility and connectivity on a core set of highway corridors throughout North Carolina, while promoting environmental stewardship through maximizing the use of existing facilities to the extent possible, and fostering economic prosperity through the quick and efficient movement of people and goods. Each Corridor represents an opportunity for NCDOT, partnering agencies, and other stakeholders to consider a long-term vision, consistency in decision-making, land use partnerships, and overarching design and operational changes.

The primary purpose of the SHC concept is to provide a network of high-speed, safe, reliable highways throughout North Carolina. The primary goal to support this purpose is to create a greater consensus towards the development of a genuine vision for each Corridor - specifically towards the identification of a desired facility type (Freeway, Expressway, Boulevard, or Thoroughfare) for each Corridor. Buy-in towards this vision and desired facility type would affect decision-making throughout the project improvement process, i.e., affecting funding decisions, project planning decisions, design decisions, access and operational decisions (driveway permit approvals and traffic signal installations), and local land use decisions.

This concept has undergone a number of changes over the course of the past three years. Initially, a set of governing criteria was developed to guide the corridor selection process. These criteria focused on mobility, connectivity to activity centers, connectivity to interstates, interstate relief routes, major hurricane evacuation routes, and corridors that are part of a national or statewide highway system. Activity centers include urban areas with a population of 20,000 or greater, state seaports, major airports, major intermodal terminals, major military installations, University of North Carolina system campuses, trauma centers, and major tourist attractions. Input from public forums and from members of the North Carolina Board of Transportation (BOT) and NCDOT Highway Operations staff have also been instrumental in further refining and improving this concept. The result is a long-range highway planning vision for the state, illustrated by a Vision Plan with the proposed facility types and documented as a set of recommended Corridors. The 5400 miles of designated Strategic Highway Corridors, which include existing and proposed interstates, account for only 7% of the state's highway system, but carry 45% of the traffic.

Implementation efforts of the concept focus on six different areas:

- **Education.** Educating all stakeholders on the concept on a continual basis to ensure those involved are aware of the latest activities and policies.
- **Long-Range Planning.** Individual Comprehensive Transportation Plans will incorporate the long-term vision of each Corridor. Additionally, a series of corridor studies may be undertaken to define needs, issues, and unique challenges of each Corridor. These studies provide all stakeholders an opportunity to be involved at the beginning of the planning process.
- **Project Planning and Design.** Projects along Corridors will be developed in a manner to achieve the long-term vision and goals of the initiative.

- **Corridor Access.** All driveway permits and traffic signal requests along the Corridors will be carefully examined for consistency with the long-term vision for the corridor. Driveway consolidation and sharing will be highly encouraged, and alternative solutions to traffic signals will be pursued.
- **Land Use.** Consistent and compatible land use decisions are needed to support the goals of the initiative. Mechanisms will be developed to assist local jurisdictions in helping to protect mobility and safety along the Corridors.
- **Corridor Protection.** Managing development along the Corridors (both for existing and new location facilities) is essential for achieving the long-term vision for each facility. Tools, techniques, and strategies will be identified for protecting the Corridors, such as the use of access management.

The SHC concept was adopted by the BOT on September 2, 2004, as a part of North Carolina's Long-Range, Multimodal Statewide Transportation Plan. Following adoption, a formal policy statement on the initiative was endorsed by NCDOT, NCDOC, NCDENR, and the Governor's Office.

Continued documentation of all activities, tasks, decisions, and other items of notable importance, is essential during the evolvement of this initiative for future decision-makers, engineers, planners, and other stakeholders. In addition, NCDOT has created a comprehensive and dynamic website for all information related to the SHC initiative located at <http://www.ncdot.org/doh/preconstruct/tpb/shc>.



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## List of Acronyms

ADHS	Appalachian Development Highway System
ADT	Average Daily Traffic
BOT	(North Carolina) Board of Transportation
CTP	Comprehensive Transportation Plan
DOT	Department of Transportation
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
GIS	Geographic Information System
ICI	Indirect and Cumulative Impacts
MPO	Metropolitan Planning Organization
NAFTA	North American Free Trade Agreement
NCDCR	North Carolina Department of Cultural Resources
NCDENR	North Carolina Department of Environment and Natural Resources
NCDOC	North Carolina Department of Commerce
NCDOT	North Carolina Department of Transportation
NCSPA	North Carolina State Ports Authority
NCWRC	North Carolina Wildlife Resource Commission
NEPA	National Environmental Policy Act (of 1969)
NHS	National Highway System
NOAA	National Oceanic and Atmospheric Administration
ROD	Record of Decision
RPO	Rural Planning Organization
SHC	Strategic Highway Corridors
STP	North Carolina's Long-Range Multimodal Statewide Transportation Plan
TIP	Transportation Improvement Program
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
VMT	Vehicle Miles Traveled



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## Chapter 1 - Introduction and Background

The Strategic Highway Corridors (SHC) concept represents the first major implementation step to be advanced under the update of North Carolina's Long-Range Multimodal Statewide Transportation Plan (Statewide Transportation Plan). The Statewide Transportation Plan, adopted by the Board of Transportation (BOT) in September 2004, is the product of an intensive, three-year planning process to greatly enhance a focus on providing and supporting a truly modern, well-maintained, and multimodal transportation system. In keeping with the Plan's emphasis to increase modernization and preservation activities across all of North Carolina's travel modes, the SHC concept generates a new focus for the North Carolina Department of Transportation (NCDOT) to improve, protect, and better plan for a series of critical highway facilities in the state. This concept provides a tangible, first step for maximizing the use of highway infrastructure and limited financial resources. The formal recognition of the SHC concept confirms NCDOT's commitment to emphasize greater planning and investment in the state's highest use facilities - those facilities that play a critical role in statewide mobility and regional connectivity.

"Today's economy is a highly competitive global marketplace. The development of *Strategic Highway Corridors* is an exciting new initiative that will expand our competitiveness by creating safer and easier access to job centers, airports, hospitals, military bases and schools. Public input will ensure that we improve these corridors in a way that promotes economic prosperity and, at the same time, protects our state's valuable natural resources."

-Governor Michael F. Easley

This report provides information about the development of the SHC concept, including background, goals, corridor selection, the vision for the corridors, mapping, implementation, and public involvement. Input from staff, other state agencies, and the public resulted in enhancements and revisions to the original concept over the past three years. Additionally, a series of nine public forums held throughout North Carolina in late 2003/early 2004 confirmed broad support, timeliness, and necessity for this concept. The active involvement of BOT members has also been instrumental in guiding staff to create a department policy on the concept. Plan implementation rests largely with the staff of the NCDOT, partnering agencies, and local governments. For each of the Strategic Highway Corridors, continuous and active involvement over time is required to affect long-term decisions.

### 1.1 What is the State of Transportation in North Carolina?

NCDOT manages one of the largest roadway systems in the United States, second only to Texas. This level of responsibility combined with continued growth in vehicle ownership and vehicle miles traveled (VMT), places a significant daily demand on North Carolina's highway infrastructure. The condition of the existing system is stressed, while much of the improvement program is oriented towards new highway construction. The highway analysis in the Statewide Transportation Plan identified a growing list of backlog and anticipated needs within the existing system, including:

- Nearly 32,000 of the 78,844 miles (41%) of state-maintained highways in North Carolina currently have significant pavement condition deficiencies
- Almost 7,000 of the state's 17,000 bridges (41%) are currently deemed "deficient", i.e., considered in either poor condition and/or lacking adequate load carrying capacity

- Future highway maintenance/preservation needs (over the next 25 years) are expected to be almost \$25 billion
- Future highway modernization needs (over the next 25 years) are expected to be almost \$20 billion

Further delay in addressing these needs will result in more costly reconstruction projects in the future and adversely impact safety to the traveling public. According to The Road Information Program (TRIP), declining safety features and poor pavement conditions are costing North Carolina motorists \$5.3 billion annually in the form of traffic accidents, additional vehicle operating costs, and delays<sup>1</sup>. TRIP also reports North Carolina's traffic fatality rate to be 13 percent higher than the national average, in part due to increasing congestion, but also due to deteriorating design and physical roadway conditions such as poorly maintained medians, lack of adequate shoulders, and antiquated intersections and traffic signal systems<sup>2</sup>. Declining safety features along with unchecked development in and around key corridors in the state continue to highlight the need for broad operational improvements and greater coordination of planning between state and local entities.

Delivering transportation service is also becoming more complex and challenging, both nationally and in North Carolina. Past legislation, historical roles and responsibilities, and environmental, land-use, and social equity concerns govern the life of a highway project as it moves from planning to construction. Implementation of recent environmental streamlining efforts by the NCDOT, the United States Army Corps of Engineers, and the North Carolina Department of Environment and Natural Resources (NCDENR) may result in a 20% reduction in overall delivery time. However, many high-profile, new highway construction projects face a greater share of environmental hurdles and public opposition requiring additional time and a concentration of resources. Legislative mandates require NCDOT to stay focused on expanding the system; however, flexibility is needed to make proactive, strategic improvements in light of an aging highway system and plan policy direction.

The financial resources needed to keep pace with North Carolina's list of infrastructure needs falls far short of what is required and the gap will only widen in the future. Recent trends suggest VMT to be growing at a rate seven times faster than that of NCDOT's budget and almost three and a half times the rate of population (see Exhibit 1). With no new significant funding sources identified in the near term, NCDOT must act to improve and obtain greater efficiency out of critical highway assets. The SHC concept addresses this challenge by focusing NCDOT on a series of highways intended to promote economic competitiveness, environmental sustainability, and improved travel continuity between regions and communities.

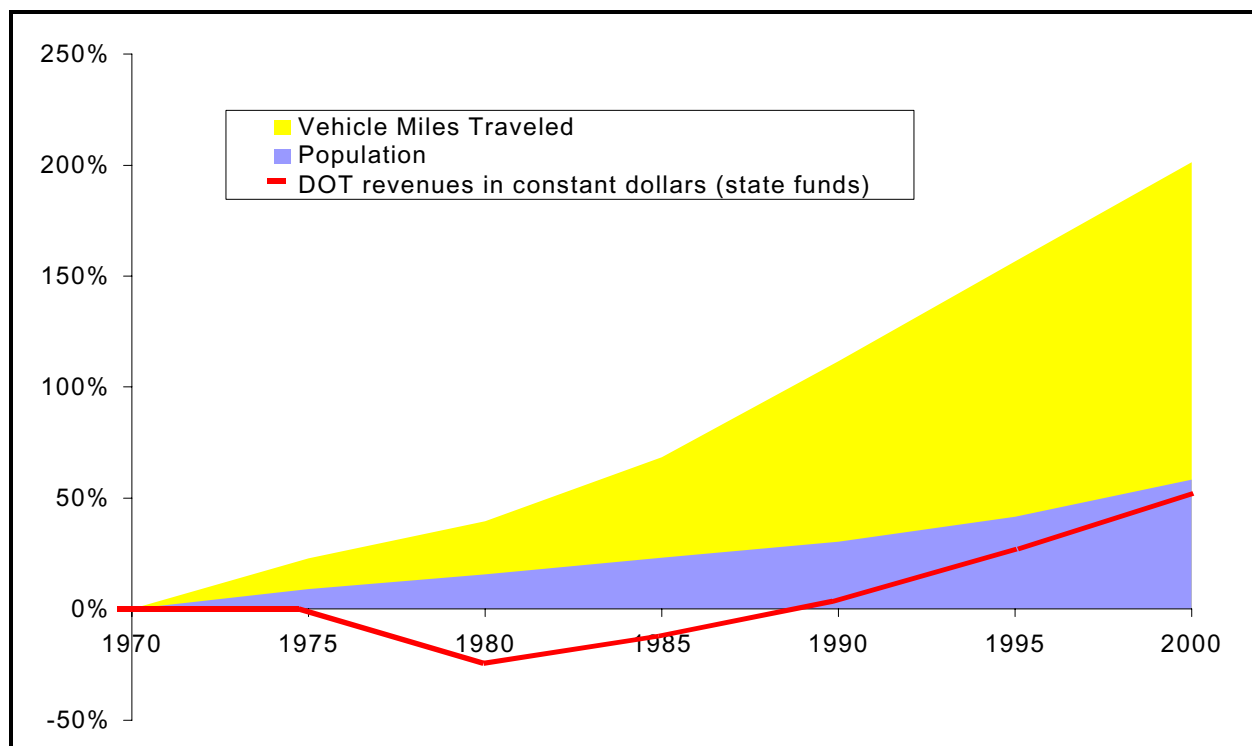
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<sup>1</sup>The Road Information Program, *Paying the Price for Inadequate Roads in North Carolina: The Cost to Motorists in Reduced Safety, Lost Time, and Increased Vehicle Wear*, April 2004.

<sup>2</sup>Traffic fatality rate based on TRIIP analysis of National Highway Traffic Safety Administration data comparing North Carolina's traffic fatality rate per 100 million vehicle miles of travel (1.7) to the national average (1.5).



Exhibit 1: Vehicle Miles Traveled, Population, and NCDOT's Budget (1970-2000)



## 1.2 How is North Carolina Changing?

### Demographic Trends

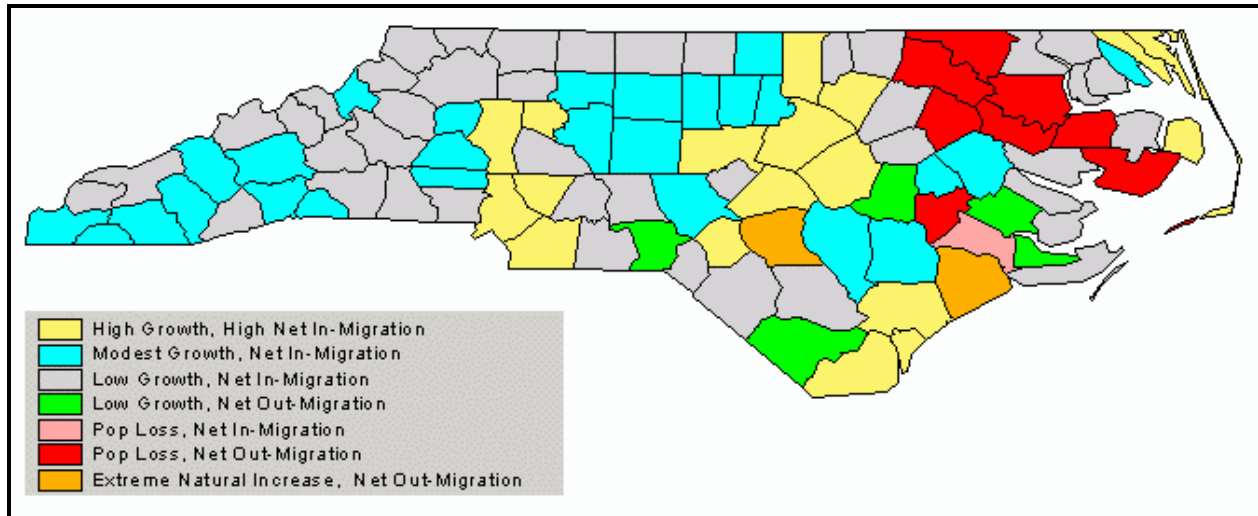
North Carolina is experiencing rapid growth and is currently the third-fastest growing state east of the Mississippi River, according to the United States Census Bureau. North Carolina's population, at just over 6 million people in 1990, is now almost 8.5 million<sup>3</sup>. The fastest growing counties are currently in the Charlotte, Raleigh-Durham, and Wilmington areas (see Exhibit 2). This rate of population expansion is expected to continue in the future resulting in an additional 3.6 million new residents by 2030 (see Exhibit 3).

Population alone is creating significant new transportation capacity demands for North Carolina, but other demographic trends are also adding to the state's transportation challenges:

- Household income in the state has risen dramatically, further fueling recreational and tourism travel, and adding to overall vehicle trips per household.
- Suburbanization is increasing - the typical North Carolina commuter spends an additional 35 hours per year in traffic versus 10 years ago.<sup>1</sup>
- VMT, a common industry measure of travel demand, has increased by almost 40% from 1990 to 2000.

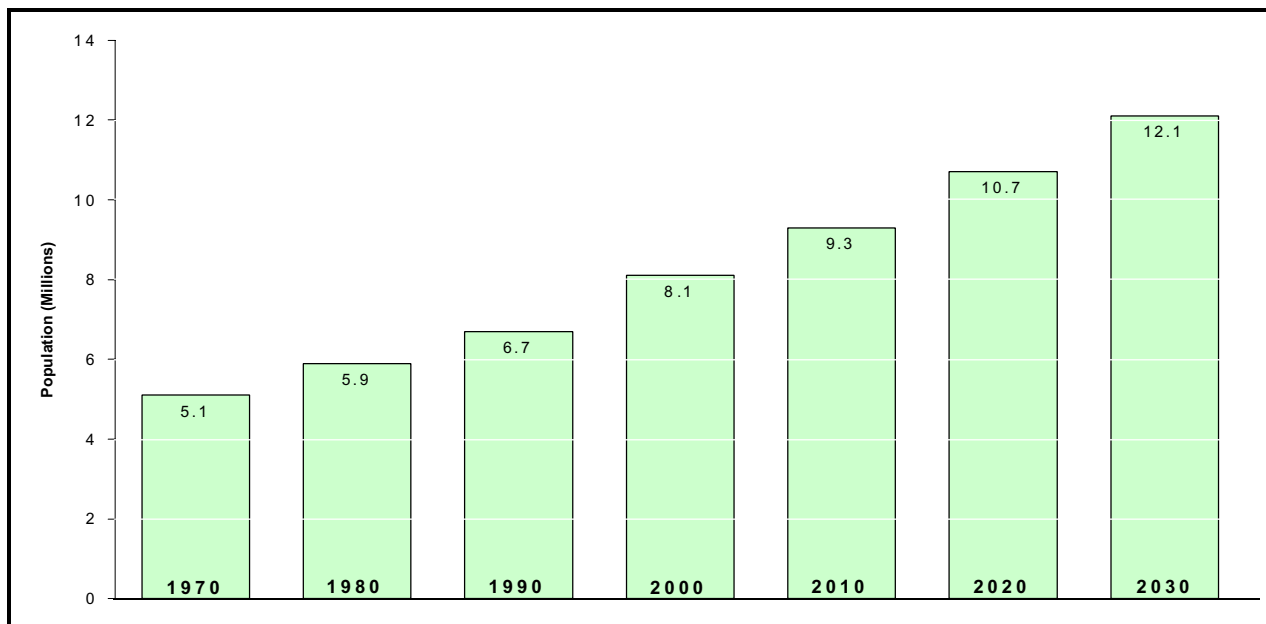
<sup>3</sup>North Carolina State Data Center, <http://sdc.state.nc.us/>.

Exhibit 2: Projected Population Growth by County (2000-2010)



Source: *North Carolina State Data Center*

Exhibit 3: Existing and Projected Population Growth (1970-2030)



Source: *North Carolina State Data Center*

## Economic Trends

North Carolina is characterized by diverse regional economies, supported by both traditional and emerging industries. The Charlotte area is a prominent banking and financial center; the Southeast region is tied to the United States military presence; the Mountains, Northeast region and the Outer Banks drive a burgeoning tourism economy; the Triad is home to numerous manufacturing and logistics industries; and the Research Triangle region is touted for its technology-related businesses and prominent university pres-

ence. North Carolina is also well known for its many agri-business industries, and the state is a national leader in turkey and pork production. Accurately predicting the future of North Carolina's economy is difficult; however the growth of a number of service-oriented and knowledge-based companies is expected to change the nature of workforce training, job skills, and industry recruitment and placement. Other trends such as manufacturing decentralization, just-in-time delivery<sup>4</sup>, and the increased use of technology will require transportation services to be modern, reliable, and operationally efficient. The SHC concept supports these trends by focusing resources on better planning of major statewide and regionally significant facilities. These facilities will serve as a transportation backbone for the state, tying regions and subregions together, expeditiously moving raw goods to market, and keeping North Carolina at a competitive advantage both domestically and internationally.

## Domestic and International Trade

Transportation is increasingly becoming the core component of a broader, global economic supply chain. Recent national and global economic policies, such as the North American Free Trade Agreement (NAFTA) and other trade liberalization practices, along with alliances in new international markets will add significant pressure to North Carolina's transportation system. The state's gateways, air and sea ports, connecting infrastructure, and major rail and highway facilities will bear the bulk of this increased freight movement. Between 1998 and 2020 domestic tonnage carried along national freight systems is expected to increase by 67% (see Exhibits 4 and 5), while international trade will nearly double. This dramatic increase in commodity flow, coupled with delivery time and service reliability considerations will require state DOTs to build and maintain an integrated transportation system with seamless operations between manufacturing centers, distribution hubs, and major freight destinations.

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<sup>4</sup> A method of production and inventory cost control based on the delivery of parts and supplies at the precise time they are needed in a production process.

Exhibit 4: 1998 Domestic Truck Volumes

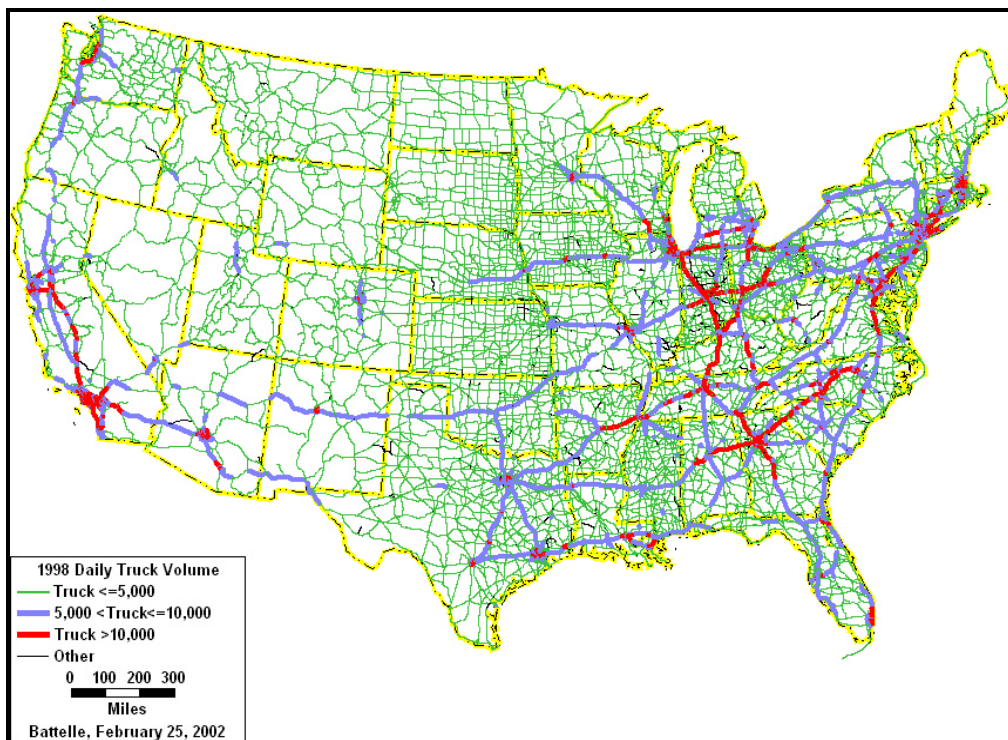
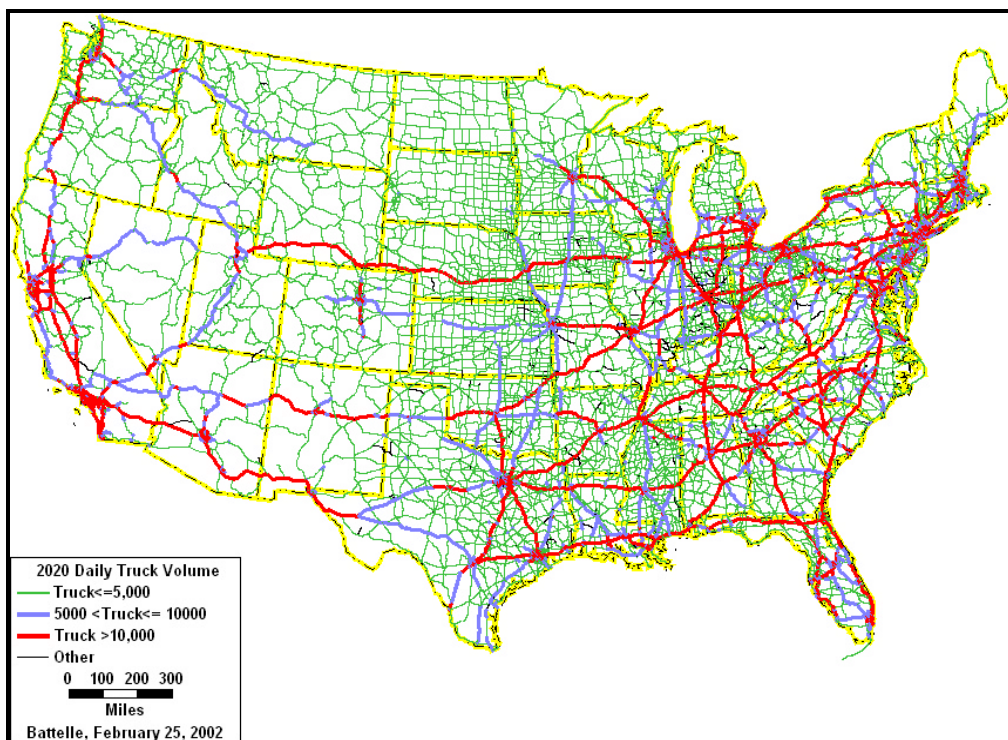


Exhibit 5: 2020 Forecasted Domestic Truck Volumes



Source: FHWA Freight Analysis Framework

## Latin American Trade and Transportation Study

Since the late 1990's, NCDOT along with 15 other state DOTs in the southeastern United States, have sought to better understand the impact of international trade with Latin America. The Latin American Trade and Transportation Study<sup>5</sup> (LATTS) financed by each state DOT and the Federal Highway Administration (FHWA) provides decision-makers with data and an outlook of infrastructure needs based on a projected three-fold increase in trade with Latin American countries by 2020. The study



also raises investment policy and economic considerations faced by each southeastern state. The state DOTs, formally recognized as the Southeastern Transportation Alliance, have utilized the services of a consultant firm to produce a series of state profile reports, trade flow summaries, and financial strategies associated with reorienting infrastructure investment to take advantage of this trading opportunity. Needs and costs associated with high-

ways, rail lines, airports, and sea/river ports, along with other relevant freight trends have been prepared for each state. Recently a new Institute for Trade & Transportation Studies (ITTS) opened in Louisiana and will act as a resource and research arm to contributing member states.

Given this context, the SHC concept again proves to be a timely platform on which specific infrastructure improvements required to accommodate increased freight movement can occur. Each LATTS Highway Corridor (see Exhibit 6) in North Carolina is already identified as a Strategic Highway Corridor, and the ultimate facility type vision for these specific corridors (see Chapter 3) addresses the theme of greater freight mobility and safety. Along with advancing the SHC concept, NCDOT must consider the following actions as part of an overall freight transportation policy:

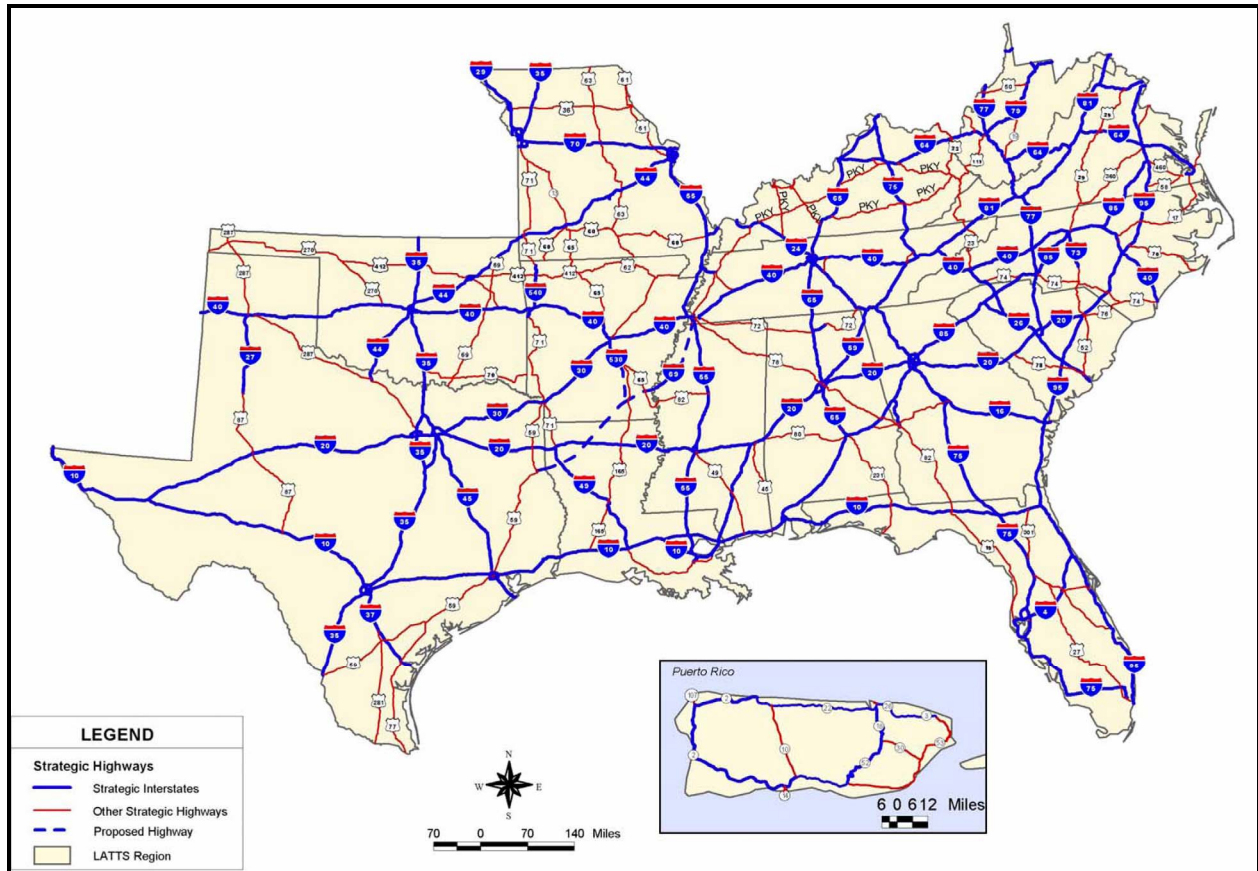
- Building efficient, mobility-oriented transportation corridors that service truck and rail freight needs and effectively move traditional manufacturing and emerging goods to market.
- Modernizing short highway connections (typically National Highway System Connectors) in urban and rural areas that represent critical “last mile” segments of the transportation system.
- Partnering with the private industry (and other state agencies such as the Department of Commerce) to finance transportation solutions for unique regional infrastructure problems.
- Providing transportation services that fit emerging supply chain and business needs; consider creative solutions such as truck-only lanes for specific highway segments.
- Working with other vested industries and organizations to improve the efficiency and transfer of goods between transportation modes at intermodal terminals, ports, and distribution hubs.

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<sup>5</sup>Additional information can be found at <http://www.wilbursmith.com/latts/index.html>.



Exhibit 6: Latin America Trade and Transportation Study Highway Network



Source: *Latin America Trade and Transportation Study*

## 1.3 How is North Carolina Addressing the Environment?

In recent years, environmental considerations associated with transportation projects have been incorporated earlier in the overall planning process. NCDOT staff is conducting more environmental prescreening analyses in the systems-level planning process and working to improve the Purpose and Need statements that represent the first phase of project development. Section 102 of the National Environmental Policy Act (NEPA) requires the completion of an Environmental Impact Statement (EIS) for projects that have a significant impact on the environment. The EIS includes impacts on wetlands, wildlife, water quality, historic properties, and public lands. In many cases, new location highway projects pose the greatest challenge for meeting NEPA requirements due to the obvious impacts created in undeveloped areas. Environmental complications and project complexities have overwhelmed resources and put state and federal agencies at odds with one another over how to best balance project delivery versus protecting endangered species or sensitive ecological areas. NCDOT has established itself as a national leader in this field by working to build consensus among parties and identifying mutual goals that lead to a streamlined process. These efforts have resulted in the creation of an Office of Environmental Quality and application of a highly recognized Environmental Stewardship Policy (Appendix A).

NCDOT and its partners are also working towards achieving nine streamlining goals<sup>6</sup> which are intended to reduce time in the project planning and delivery process while maintaining a commitment to environmental excellence. The SHC concept fits the tone of these efforts by promoting resources to maximize the use of existing highway infrastructure and improve operational movement within existing highway corridors. A study of similar, long-distance corridor planning at Oregon Department of Transportation<sup>7</sup> revealed a series of direct environmental benefits, which *could* be replicated in North Carolina. The list includes:

- **Resolution of Major Planning Issues Prior to the Initiation of Project Development.** Consensus among local, regional, state, and federal agencies regarding a long-term planning vision and purpose is essential to successful project development. Corridor planning provides a framework within which a vision for individual corridors in communities can be reviewed, prioritized, and advanced under a consensus.
- **Preservation of Transportation Rights-of-Way.** Costs for transportation rights-of-way increase substantially as land suitable for transportation is developed for other purposes. Uncertainty about right-of-way needs may also impact property owners, businesses, and in some cases entire communities. The scope and 25-year horizon of a corridor plan can identify long-range right-of-way needs which serve to direct future development, reducing development costs and specifically environmental, social, and economic impacts.
- **Protection of Transportation Investments.** To prevent premature obsolescence of highways and other facilities, corridor planning examines alternate means to accommodate transportation needs with and without capital-investment improvements. Alternatives such as access management, utilization of parallel local streets, reconfigured land use patterns, and demand management programs (i.e., telecommuting, rideshare, public transportation, flex-time, etc.) are considered in lieu of or in addition to major capital improvements. All of these result in limited impacts to the surrounding environment, and can provide other community enhancement and quality of life benefits.
- **Partnership with Diverse Public and Private Agencies and Organizations.** Corridor planning provides a forum for resolution of policy issues and negotiation of strategic partnerships between organizations striving to fulfill complimentary missions with limited resources. New innovative public-private partnerships, cost sharing agreements, and confidence-building measures can be enacted to bring multiple parties around a common goal.

Along with the benefits outlined above, NCDOT should also consider other innovative solutions for leveraging the use of corridor planning. One example might include moving towards an incentive-based “flexible mitigation” policy along Strategic Highway Corridors. All agencies involved would agree up front to identify and improve the “green” infrastructure (greenways or nature trails) along with and in response to the unavoidable impacts created by improving the “grey” infrastructure, i.e., the actual physical highway and cross streets. This type of planning would be particularly effective along designated scenic highway corridors.

Efforts should also be made to maintain the natural beauty of an area when making transportation improvements. The Baltimore-Washington Parkway in Maryland provides a good example of preserving

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<sup>6</sup>NCDOT/FHWA Joint Work Plan for Timely Program Delivery with Environmental Excellence,  
<http://www.ncdot.org/secretary/envsteward/performance/workplan/>.

<sup>7</sup><http://www.odot.state.or.us/tdb/planning/corridor/overview.html>.



the scenic character of an area while providing high-speed mobility for commuters and tourists (see Exhibit 7). Working together with local stakeholders, NCDOT should seek context sensitive solutions that not only enhance the transportation function of the roadway, but also the surrounding area.

Exhibit 7: Baltimore-Washington Parkway

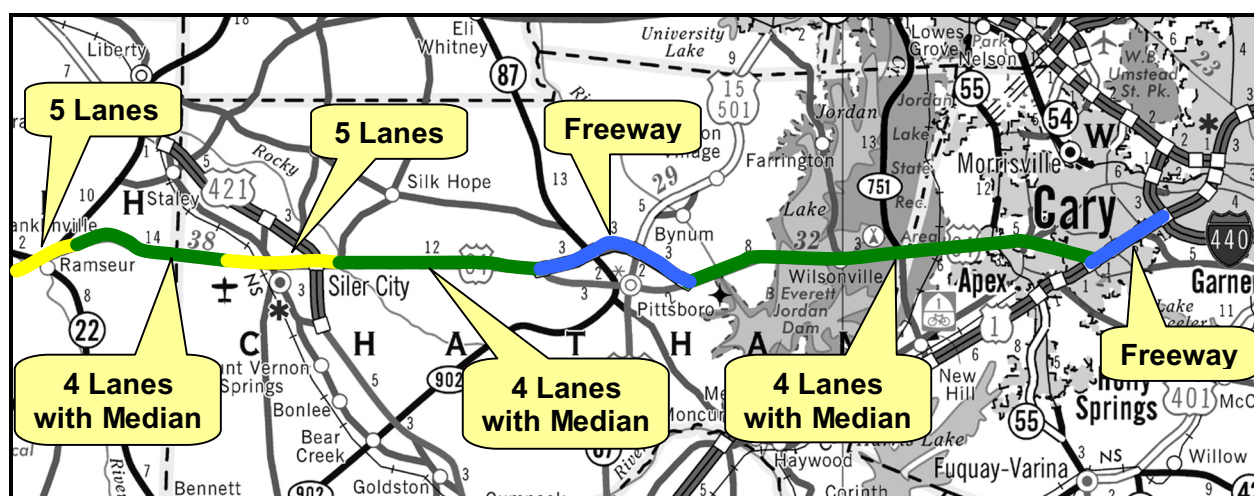


## Chapter 2 - Concept Development

### 2.1 Why was the Concept Initiated?

The SHC concept stems from the practice of long-range systems planning. Since the 1960s, systems planning studies have been conducted in local and regional areas throughout North Carolina. These studies have been valuable, and have helped communities understand growth and better plan for transportation improvements. However, study recommendations typically stop at planning area borders, which are usually just beyond city limits or at county boundaries. In addition, decisions made in the project development and planning process typically focused on the limits of the project itself. NCDOT has lacked a broader, statewide vision for how to ensure continuity and consistency for travel flow between these planning areas, communities, and in the development of projects, as illustrated in Exhibit 8. The SHC concept represents the first step towards "connecting the dots" and promoting a more consistent transportation service for motorists in North Carolina.

Exhibit 8: Variations in Roadway Cross-Sections along US 64 in Central North Carolina



The development of this concept began in 2002 and has continued to evolve over time. From the beginning, the concept was shaped by sound technical criteria, planning and operational considerations, significance of historical studies, and the establishment of relevant goals and future applications. Work centered on the need for NCDOT and its stakeholders to consider planning from a broader perspective, with a specific focus on maximizing the mobility of "core" highway facilities within North Carolina's transportation system.

### 2.2 What are the Themes of the Concept?

The development of the SHC concept was a collaborative effort by the Department of Transportation, Department of Commerce, and Department of Environment and Natural Resources. These agencies saw the need and importance of this initiative to enhance the overall quality of life and business climate in

North Carolina. This concerted effort led to the formation of three key themes that characterize the SHC concept: Mobility and Connectivity, Environmental Stewardship, and Economic Prosperity.

## Mobility and Connectivity

Mobility is defined as the ability to move unimpeded, safely, and efficiently using a reliable transportation system, while Connectivity is defined as the ability to travel to desired destinations. The SHC concept will enhance motorists' ability to travel to statewide and regional destinations in a safe and efficient manner.

## Economic Prosperity

Expanding upon the Mobility and Connectivity theme, Economic Prosperity is defined as the ability to move people and goods in a manner that creates a more competitive business climate and provides a good quality of life for those employed. An efficient and reliable highway system is vital for North Carolina to stay competitive its ability to attract new business and industry while retaining the companies that currently call the state "home". Improved mobility translates into time-savings for business and freight carriers and accentuates the state's attractiveness for new industry recruitment.



## Environmental Stewardship

Coinciding with NCDOT's Environmental Stewardship policy, this theme is defined as striving to preserve and enhance our natural and cultural resources by maximizing the use of the existing transportation infrastructure with the support of compatible land uses. The intent of the SHC concept is to make the most out of the state's existing infrastructure and limit (to the extent possible) construction on new location. By building upon an existing "footprint," impacts due to construction to the surrounding natural, cultural, and social environment can be reduced. This may not be feasible in all cases, however, the concept does lay the groundwork to support a long-term shift in how highway improvements can be made. Additionally, consistent and compatible land uses will be needed to support this effort.

## 2.3 What are the Purpose and Goals of the Concept?

The primary purpose of the SHC Concept is to provide a safe, reliable, and high-speed network of highways that connect to travel destinations throughout and just outside North Carolina. There are several goals associated with the concept, which support this purpose and incorporate the three themes mentioned above. The foremost goal is the recognition of new long-term, ultimate facility type designations for each highway corridor (see Chapter 3). This facility type, or vision for how travel along a facility should operate, is a recommendation to move planning beyond jurisdictional boundaries, improve decision-making between NCDOT and its stakeholders, and genuinely build a consensus-based dialogue with citizens who live along these corridors. The envisioned facility type provides motorists a high-speed, safe, and efficient facility for travel. A related goal is to use the concept as a tool to influence and affect ongoing planning and project related decisions in order to realize the facility type vision. Influence can extend to

making project and/or design changes or possible reconsideration of project scope. One example of a small-scale project change would be the early acquisition of right-of-way needed to support larger-scale interchanges for a Freeway, even if an Expressway facility was the project under construction. In other cases, through the preparation of corridor studies, the SHC concept can act as additional input in the development of a planning document to support a particular alternative. Major corridor level studies will provide technical data, environmental information, and local input that should lead to an improved and potentially streamlined, decision-making process. It should be noted however that the SHC concept, the facility types, and any future studies, which support these facility types, do not supersede or negate current federal and state planning requirements. Implementing conclusions or suggested improvements from corridor studies must still follow the laws of the NEPA process.



The SHC concept is expected to influence the decisions described below:

- **Funding Decisions.** Providing a consistent high-level of mobility along corridors requires additional capital costs for the additional infrastructure (e.g., additional right-of-way and bridges). Additional funds and/or establishing new funding sources will be needed to develop master plans for these corridors and to finance improvements necessary to achieve the high-level of mobility.
- **Project Planning Decisions.** During project development process, decisions need to be made that examine how individual project improvements fit within a larger corridor, particularly in regards to the function and connectivity of the entire facility. Establishing the role of a corridor will provide a stronger purpose and need for projects along the facility.
- **Design Decisions.** Appropriate design elements will be needed to support roadway attributes, consistent with envisioned facility type, while also preserving the natural and human environment.
- **Access and Operational Decisions.** Managing access to corridors is crucial for achieving the envisioned facility type and maintaining a high-level of mobility and safety; therefore it requires consistent and careful decisions on driveway connections and traffic signal installations.
- **Local Land Use Decisions.** Achieving and maintaining the desired facility type requires consistent, compatible, and coordinated land use decisions through partnering with local governments.

## 2.4 How were the Corridors Selected?

The SHC concept represents a new approach to long-range transportation planning in North Carolina. The highway system is viewed from a broader perspective independent of municipal and traditional boundaries, with a greater emphasis on connectivity, goods movement, destination, and the functionality of a facility. As with any new planning initiative, the process started with building a consistent set of definitions, terms, and selection criteria, which included coordination within NCDOT, and with federal and state agencies. Quantifiable and subjective criteria were developed and applied to distinguish the nature of a "strategic" corridor within the current highway system. Quantifiable criteria included current and future traffic volumes, route classification, and truck traffic percentages. Subjective criteria included



a corridor's role and function, its significance to a regional area, and/or its historical role in national and/or statewide movement.

The selection criterion was established early in the developmental phase of this concept. NCDOT used a data-driven approach and supplemented the analysis with historical information and input from other agencies and the public. Initially the criteria centered on identifying facilities below the Interstate System that exemplified the potential to serve vehicular travel in a high-speed manner. This emphasis on mobility was enhanced by also considering connectivity in the system. The term "Activity Center" was introduced to define destinations, encompassing statewide, regional, and places just outside of North Carolina's borders that serve the state's citizens. The original approach utilized criteria to distinguish and organize corridors and activity centers into a two-tier structure, comprising statewide and regional tiers. However, over time and with public input, each selected corridor was simply referred to as "strategic", without regard to size or scale.

The selection of the corridors is characterized by one or more of the following primary criteria:

- **Mobility.** This criterion focuses on whether a corridor currently serves or has the potential to expeditiously move large volumes of traffic. These include facilities that are vital to the state's and/or region's interest and serves long-distance and/or regional travel, whose users may be long haul trucks, tourists, and/or motorists passing through a region.
- **Connectivity.** This criterion focuses on whether a corridor provides a vital connection between Activity Centers (see Section 2.5 for a further explanation)
- **Interstate Connectivity.** This criterion focuses on whether a corridor provides an important connection between existing and/or planned interstates. Interstates, as routes of national significance, primarily move people, goods, and military units between states and across the country.
- **Interstate Reliever.** This criterion focuses on whether a corridor currently serves or has the potential to serve as a reliever route to an existing interstate facility. A reliever route is considered to be an alternate facility (typically running parallel to the facility for a long-distance) to the interstate(s). Facilities that relieve interstates for short distances or are used as alternates in the event of an incident or construction are not considered Interstate relievers.



Additional elements were also taken into consideration to support the corridor selection process. These include the following:

- **Hurricane Evacuation Route.** This criterion focuses on whether a corridor is considered a major route from the NC Emergency Management's Coastal Evacuation Route Map.
- **Cited in a Prominent Report.** Certain reports list the need for improvements along major corridors in the state, mainly to improve economic conditions in a particular area. One such report is the Rural Prosperity Task Force Report, completed in 2000, which supports improvements for three prominent corridors in rural North Carolina.



- Part of a Major Highway System.** This criterion focuses on whether a corridor is part of a national, statewide, economic, or military highway system. Major highway systems include the Dwight D. Eisenhower National System of Interstate and Defense Highways, the National Highway System (Exhibit 9), the North Carolina Intrastate System (Exhibit 10), the Appalachian Development Highway System (Exhibit 11), and STRAHNET. STRAHNET is the Department of Defense's Strategic Highway Network for moving military personnel and equipment.



Exhibit 9: National Highway System in North Carolina

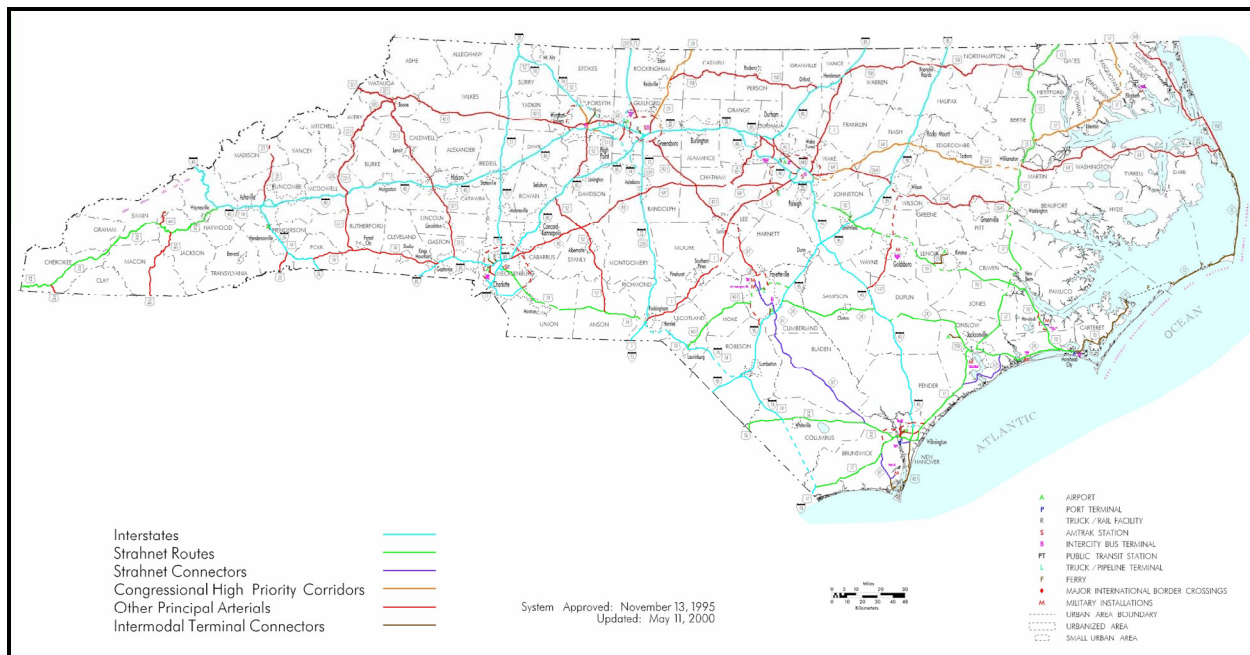
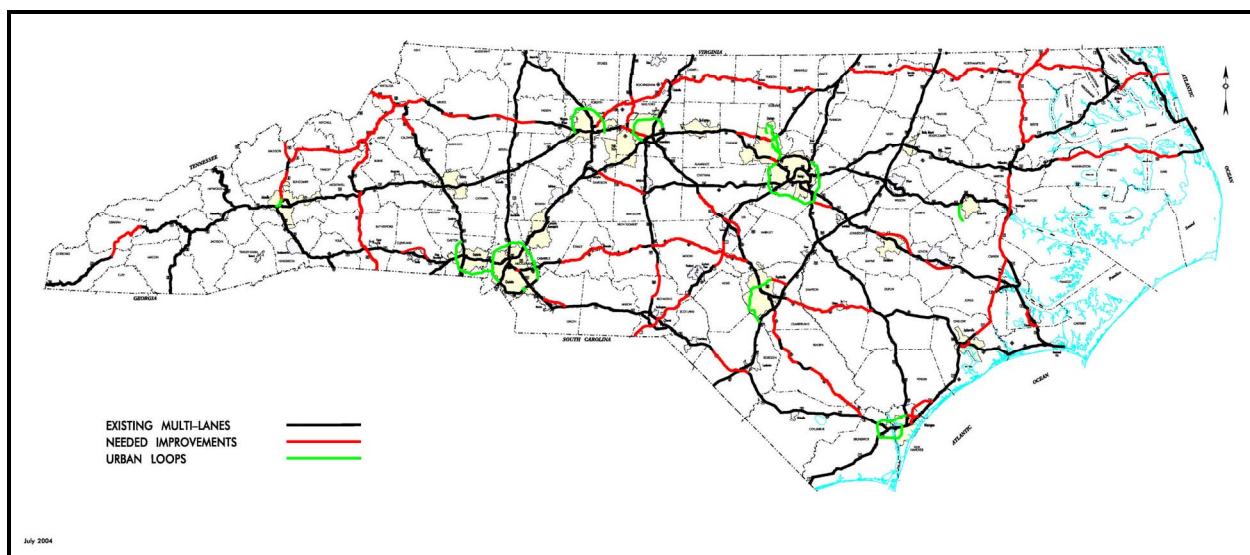
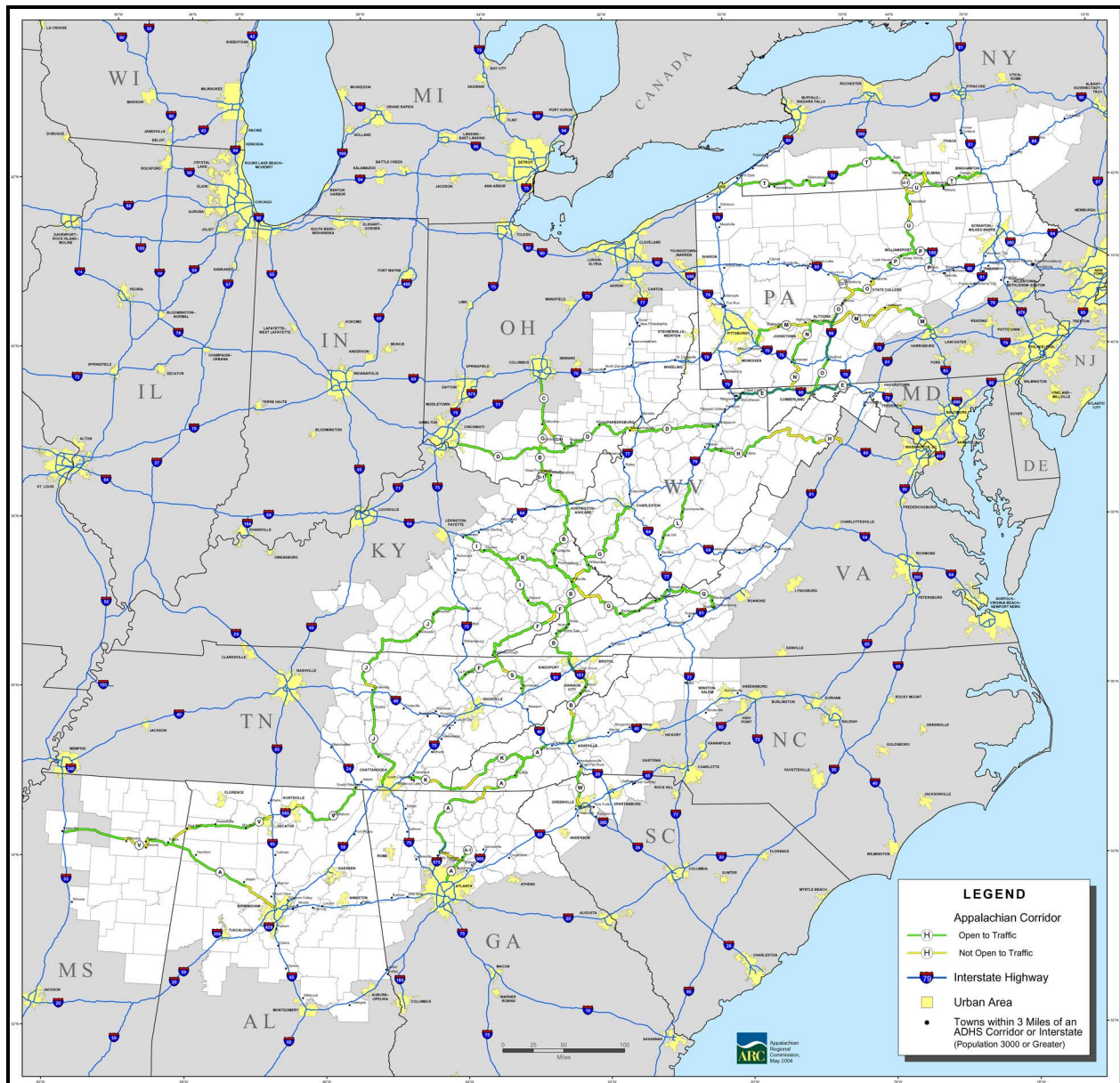


Exhibit 10: North Carolina Intrastate System



**Exhibit 11: Appalachian Development Highway System**



Source: Appalachian Regional Commission



## 2.5 What are Activity Centers?

Activity Centers represent the hubs or destinations connected by one or more Strategic Highway Corridors. These centers are the starting and/or ending point for the movement of people and goods. For the purposes of this concept, they are defined as the following:

- Urban Areas with a Population of 20,000 or greater
- State Seaports
- Major Airports
- Major Intermodal Terminals
- Major Military Bases
- University of North Carolina System Campuses
- Trauma Centers
- Major Tourist Attractions

### Urban Areas

Urban Areas with a population of at least 20,000 persons are considered to be an activity center. This definition includes all the Metropolitan Planning Organizations (MPOs), which have a population of 50,000 or greater (based on the 2000 Census), along with other regional urban areas in which major activities, such as shopping or manufacturing, take place. These urban areas typically are a hub of commercial, retail, or industrial activity for the area. The 17 MPOs in North Carolina are:

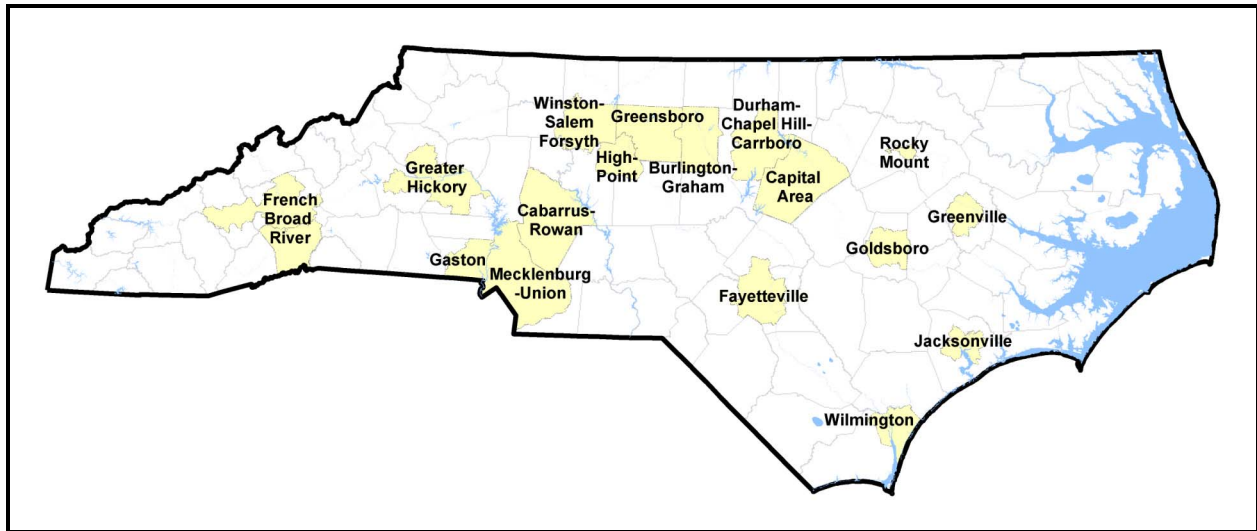
- French Broad River MPO (Asheville-Hendersonville-Waynesville)
- Greater Hickory MPO (Hickory-Newton-Conover)
- Gaston Urban Area MPO
- Mecklenburg-Union MPO (Charlotte-Monroe)
- Cabarrus-Rowan MPO (Concord-Kannapolis-Salisbury)
- Winston-Salem Urban Area MPO
- Greensboro Urban Area MPO
- High Point Urban Area MPO
- Burlington-Graham MPO
- Durham-Chapel Hill-Carrboro MPO
- Capital Area MPO (Raleigh-Cary)
- Fayetteville Area MPO
- Goldsboro Urban Area MPO
- Wilmington MPO
- Rocky Mount Urban Area MPO
- Greenville Urban Area MPO
- Jacksonville Urban Area MPO



Exhibit 12 illustrates the location of the 17 MPOs.



Exhibit 12: Metropolitan Planning Organizations in North Carolina



Major urban areas just outside North Carolina's borders are also considered activity centers as many North Carolina residents are destined to these areas for their daily activities. These areas include the Hampton Roads area in Virginia (Norfolk-Virginia Beach), Danville, VA, Atlanta, GA, and Myrtle Beach, SC.

## State Seaports

There are two state seaports in North Carolina, located in Wilmington and Morehead City (see Exhibit 14). These two ports play a crucial role in the state's economy as they help foster the movement of goods across North Carolina and the southeastern United States. These ports are also becoming extremely important as the nearby ports in Charleston, SC and Norfolk, VA approach their capacity. Providing modern, efficient transportation infrastructure to the state's ports will be vital to their long-term economic success. The port in Wilmington currently has better access to an Interstate facility, as the eastern terminus for I-40 is in the vicinity. The Army Corps of Engineers has also completed a major dredging project in the Cape Fear River, which allows larger ships to enter the Wilmington area. In state fiscal year 2004 (July 2003 to July



2004), 328 ships and 48 barges docked in Wilmington, exchanging 2,326,765 tons of goods (container, breakbulk, and bulk). During the same time period, 168 ships and 250 barges docked in Morehead City exchanging 2,215,591 of goods (breakbulk and bulk).

## Major Airports

There are six major commercial airports in the state, which facilitate the movement of people and goods throughout North Carolina and the United States (see Exhibit 14). They are:

- Asheville Regional (AVL)
- Charlotte-Douglas International (CLT)
- Fayetteville Regional (FAY)
- Piedmont-Triad International (GSO) located in Greensboro
- Raleigh-Durham International (RDU)
- Wilmington International Airport (ILM)



CLT is the largest commercial airport in the state, in terms of both cargo moved and passenger boardings or enplanements. CLT is considered to be a large hub according to the Federal Aviation Administration<sup>8</sup> (FAA), as more than 1% of the national passenger boardings occur there. CLT is currently served by nine carriers and is home to US Airways largest hub. RDU is considered to be a medium hub according to the FAA with less than 1%, but more than 0.25% of the national passenger boardings. Eleven airlines currently provide service to RDU, including many low-cost carriers. The airport also serves the greatest amount of local traffic (passengers whose origin and/or destination is RDU) in the state (see Exhibit 13).

GSO is considered to be a small hub with less than 0.25%, but more than 0.05% of the national passenger boardings. Seven carriers currently serve GSO. AVL, FAY, and ILM are all classified as Nonhubs as less than 0.05% of the national passenger boardings occur at each of these airports. Five commercial carriers serve AVL, while both FAY and ILM are each currently served by two. Exhibit 13 below lists the total enplanements, percentage of local passengers, and tons of cargo moved (enplaned and deplaned) for 2004.

Exhibit 13: 2004 Passenger and Cargo Data for the Major Commercial Airports

Airport Name	Location Identifier	Hub Type	Passenger Enplanements (National Ranking)	Percent Local Passengers <sup>9</sup>	Cargo Moved (tons)
Charlotte-Douglas International	CLT	Large	12,562,133 (19)	24%	169,173
Raleigh-Durham International	RDU	Medium	4,330,492 (43)	88%	120,616
Piedmont Triad International	GSO	Small	1,355,948 (79)	89%	80,267
Wilmington International	ILM	Nonhub	288,471 (153)	88%	2,059
Asheville Regional	AVL	Nonhub	264,074 (155)	92%	N/A
Fayetteville Regional	FAY	Nonhub	157,006 (187)	92%	N/A

GSO is currently in the process of adding an additional runway to accommodate the FedEx Air Cargo Hub. CLT and RDU also plan to expand the number of runways as additional capacity is needed in the future.

## Major Intermodal Terminals

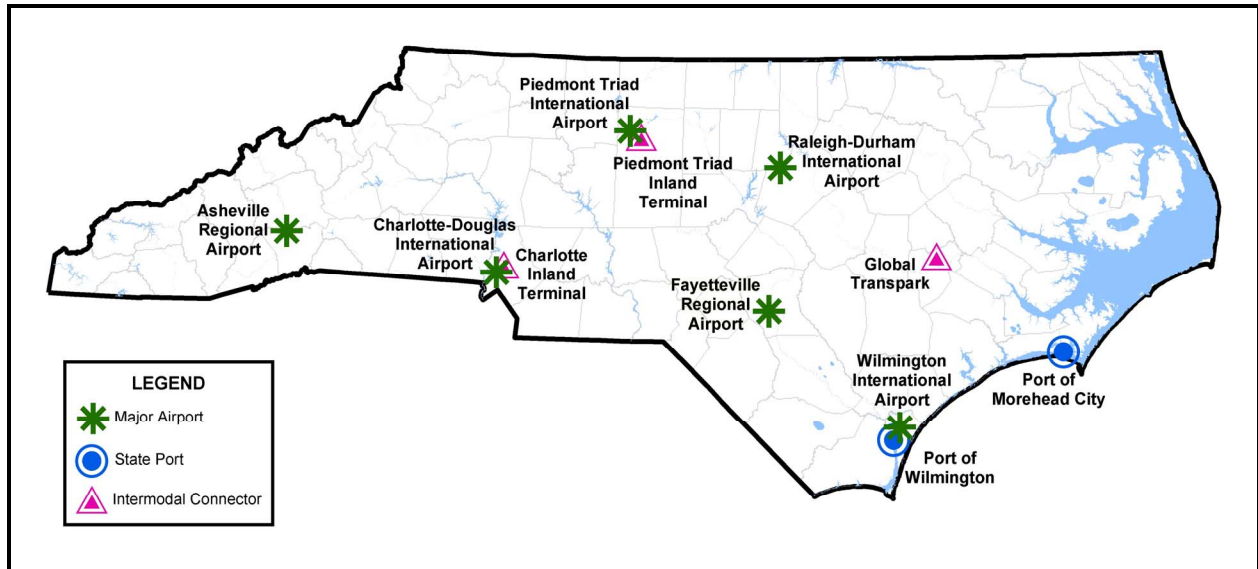
Intermodal Terminals represent a location where the transfer of goods from one mode to another occurs. These locations are sometimes referred to as inland ports or inland terminals due to the high volume of freight transfers. There are two major train-truck transfer stations in the state: Charlotte Inland Terminal (CIT) and Piedmont Triad Inland Terminal (PTIT) located in Greensboro (see Exhibit 14). These terminals are expected to experience substantial increases in cargo transfers over the next few years as a result

<sup>8</sup>Federal Aviation Administration, *Passenger Boardings and All Cargo Data*, <http://www.faa.gov/arp/planning/stats/index.cfm>.

<sup>9</sup>United States Department of Transportation Origin and Destination Survey; based on a 10% sample of all enplanements.

of increased traffic at the state's seaports. Currently, the majority of air-truck transfers occur at the six major airports in the state. In the future however, the potential exists for this type of transfer to occur additionally at the Global TransPark in Kinston.

Exhibit 14: Major Airports, Seaports, and Inland Terminals in North Carolina



## Major Military Installations

There are seven major military installations in the state, which house various units of the United States Military. The seven major bases are:

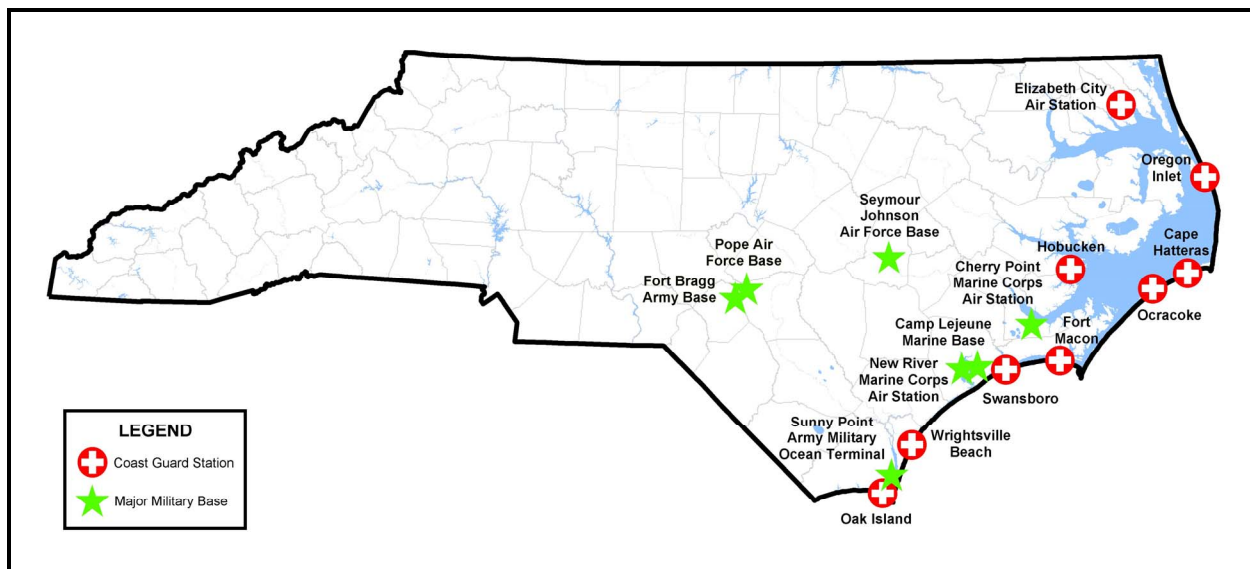
- Fort Bragg Army Base (Cumberland and Hoke Counties)
- Pope Air Force Base (Cumberland County)
- Seymour Johnson Air Force Base (Wayne County)
- Sunny Point Army Military Ocean Terminal (Brunswick County)
- New River Marine Corps Air Station (Onslow County)
- Camp Lejeune Marine Base (Onslow County)
- Cherry Point Marine Corps Air Station (Craven County)



In times of war, military installations need to mobilize equipment and personnel quickly and efficiently. Public seaports and airports serve to facilitate this logistical supply chain. Infrastructure improvements to seaports in particular are critical since these facilities are used as embarkation points.

Coast Guard stations also play an important role in protecting North Carolina. While moving equipment via highways is not as vital to these stations, they are increasingly important for the purposes of homeland security. Stations located in North Carolina are part of the 5<sup>th</sup> Coast Guard District, which includes an air station in Elizabeth City. Smaller boating units are located at Elizabeth City, Emerald Isle, Fort Macon, Hatteras Inlet, Hobucken, Oak Island, Ocracoke, Oregon Inlet, and Wrightsville Beach. Exhibit 15 illustrates the location of both the major military installations and the Coast Guard stations.

Exhibit 15: Major Military Installations in North Carolina



## University of North Carolina System Campuses

Sixteen campuses comprise the University of North Carolina System (see Exhibit 16). Each campus is an activity center within itself, as each employs hundreds of people while further housing and educating thousands of students. Exhibit 17 lists the campus locations and 2004 student enrollment, faculty, and staff.

Exhibit 16: University of North Carolina System Campuses



Source: University of North Carolina

Exhibit 17: University of North Carolina System Student and Employee Data (Fall 2004)

Institution	Student Enrollment	Faculty	Non-Faculty Employees
Appalachian State University (Boone)	14,653	990	1,458
East Carolina University (Greenville)	22,767	1,736	3,020
Elizabeth City State University	2,470	156	335
Fayetteville State University	5,441	291	528
North Carolina Agricultural and Technical State University (Greensboro)	10,383	596	1,070
North Carolina Central University (Durham)	7,727	465	970
North Carolina School of the Arts (Winston-Salem)	788	136	269
North Carolina State University (Raleigh)	29,957	1,834	5,662
University of North Carolina at Asheville	3,574	322	442
University of North Carolina at Chapel Hill	26,878	3,088	7,922
University of North Carolina at Charlotte	19,846	1,144	1,636
University of North Carolina at Greensboro	15,329	933	1,576
University of North Carolina at Pembroke	5,027	357	412
University of North Carolina at Wilmington	11,574	684	1,078
Western Carolina University (Cullowhee)	8,396	571	874
Winston-Salem State University	4,805	328	384

Source: *University of North Carolina*

The campuses also attract thousands of people not associated with the school for school-sponsored events, such as sporting and cultural events.

## Trauma Centers

A trauma center is defined as a specialized hospital facility distinguished by the immediate availability of specialized surgeons, physician specialists, anesthesiologists, nurses, and resuscitation and life support equipment on a 24 hour basis to care for severely injured patients or those at risk for severe injury. Trauma Centers employ hundreds of workers across the state while serving hundreds that are in need of medical care. There are only a limited number of centers across the state, usually located at major or regional hospitals. As a result, people seeking services provided by a trauma center often travel significant distances within a region to reach one. Trauma center designation criteria are produced by the North Carolina Office of Emergency Medical Services (NCEMS). Trauma centers in North Carolina include:

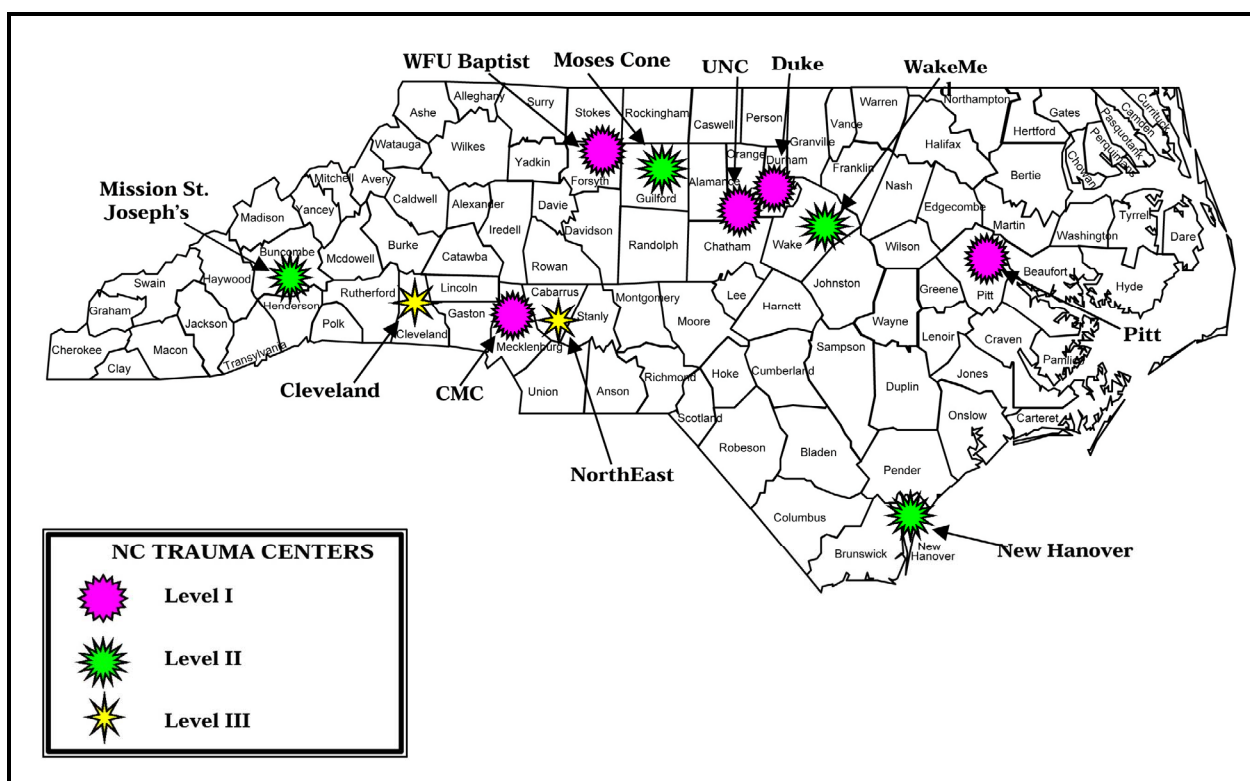
- Mission Hospitals (Asheville)
- Cleveland Regional Medical Center (Shelby)
- Carolinas Medical Center (Charlotte)
- Northeast Medical Center (Concord)
- Wake Forest University Baptist Medical Center (Winston-Salem)
- Moses Cone Memorial Hospital (Greensboro)
- University of North Carolina Hospitals (Chapel Hill)
- Duke University Medical Center (Durham)



- WakeMed (Raleigh)
- New Hanover Regional Medical Center (Wilmington)
- Pitt County Memorial Hospital (Greenville)

Three different levels of trauma centers reside in the state. Level I facilities have the capability of providing leadership, research, and total care for every aspect of injury from prevention to rehabilitation. Level II facilities provide definitive trauma care regardless of the severity of the injury, but may not be able to provide the same comprehensive care as a Level I trauma center, and does not have trauma research as a primary objective. Level III facilities provide prompt assessment, resuscitation, emergency operations, and stabilization, and arranges for hospital transfer as needed to a Level I or II trauma center. Exhibit 18 below shows the trauma centers in North Carolina with their corresponding service level.

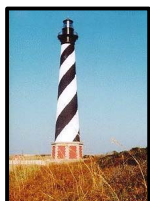
Exhibit 18: Trauma Centers in North Carolina



Source: North Carolina Office of Emergency Medical Services

## Major Tourist Attractions

Tourism is one of North Carolina's largest industries, as the state has acres of natural beauty and parks, along with many man-made attractions. The top twenty-five attractions in North Carolina, as determined by NCDOT, include the Cape Hatteras National Seashore, the North Carolina Zoological Park, Harrah's Cherokee Casino and Hotel, the Biltmore Estate, the North Carolina Memorial Battleship, Uwharrie National Forest, the Wright Brothers National Memorial, and Concord Mills Mall. Efficient and safe access to these destinations is an important part of North Carolina's economic vitality.



## 2.6 How was the Public Involved in the Development of this Concept?

From November 2003 to January 2004, NCDOT, NCDOC, and NCDENR co-sponsored a series of public meetings (regional forums) throughout North Carolina to share the SHC concept with stakeholders and gather their reactions in order to share input with management and the Board of Transportation. The major objectives for the public forums were as follows:

- Educate stakeholders about the overall SHC concept
- Gather stakeholders' reactions, input, ideas, and critical issues about SHC concept
- Educate stakeholders about next steps and timeframes in the planning process

Nine public forums were held throughout North Carolina in both urban and rural areas and in the three geographic areas in the state (west, central, east): Bryson City, Wilkesboro, Asheville, Huntersville, Southern Pines, Greensboro, Jacksonville, Wilson, and Williamston. This outreach approach was structured to ensure that both broad statewide and unique regional perspectives would be heard. Each forum lasted approximately two and a half hours and a variety of techniques were used to publicize these forums, including email, brochures, and announcements via newsletters and listserves.

Since the SHC concept represents a new planning direction, NCDOT initially chose to engage those stakeholders who have a vested interest in the conceptual planning aspects (versus those with an interest in project specific details). Targeted stakeholders included local, regional, state, and federal agencies; economic development and environmental organizations; freight industry representatives; political leadership organizations; and other advocacy groups. Approximately 250 people attended the forums, with an average of 25-28 attending each session.

Comments received at the forums covered a broad perspective. Most everyone agreed that the concept was a more organized, efficient, and effective way to plan for the major corridors in the state. Participants felt that the approach promotes a greater sense of connectivity within regions and across the state, while improving safety along these roads, and aiding in economic development. They also felt coordination and communication with local jurisdictions was essential to see success of the effort, specifically in regards to land use planning. Local officials wanted to make sure that the character of their communities and local access are maintained, while having the services of a nearby high-speed facility.

The SHC concept was initially developed using a statewide and regional tier structure as previously mentioned. The size of activity center that connected the corridors, and whether a corridor was more statewide (e.g., US 74) or regional in nature (e.g., NC 73) determined the tier of the facility. Participants at the forums suggested that NCDOT re-examine the structure and expand the definition of an activity center, to include such areas that are home to major hospitals, major tourist destinations, and UNC System Universities. NCDOT responded to these suggestions by designating all the selected corridors as “strategic” and enhancing the activity center definition.

Additional information on the regional forums and comments received can be found in Appendix B.

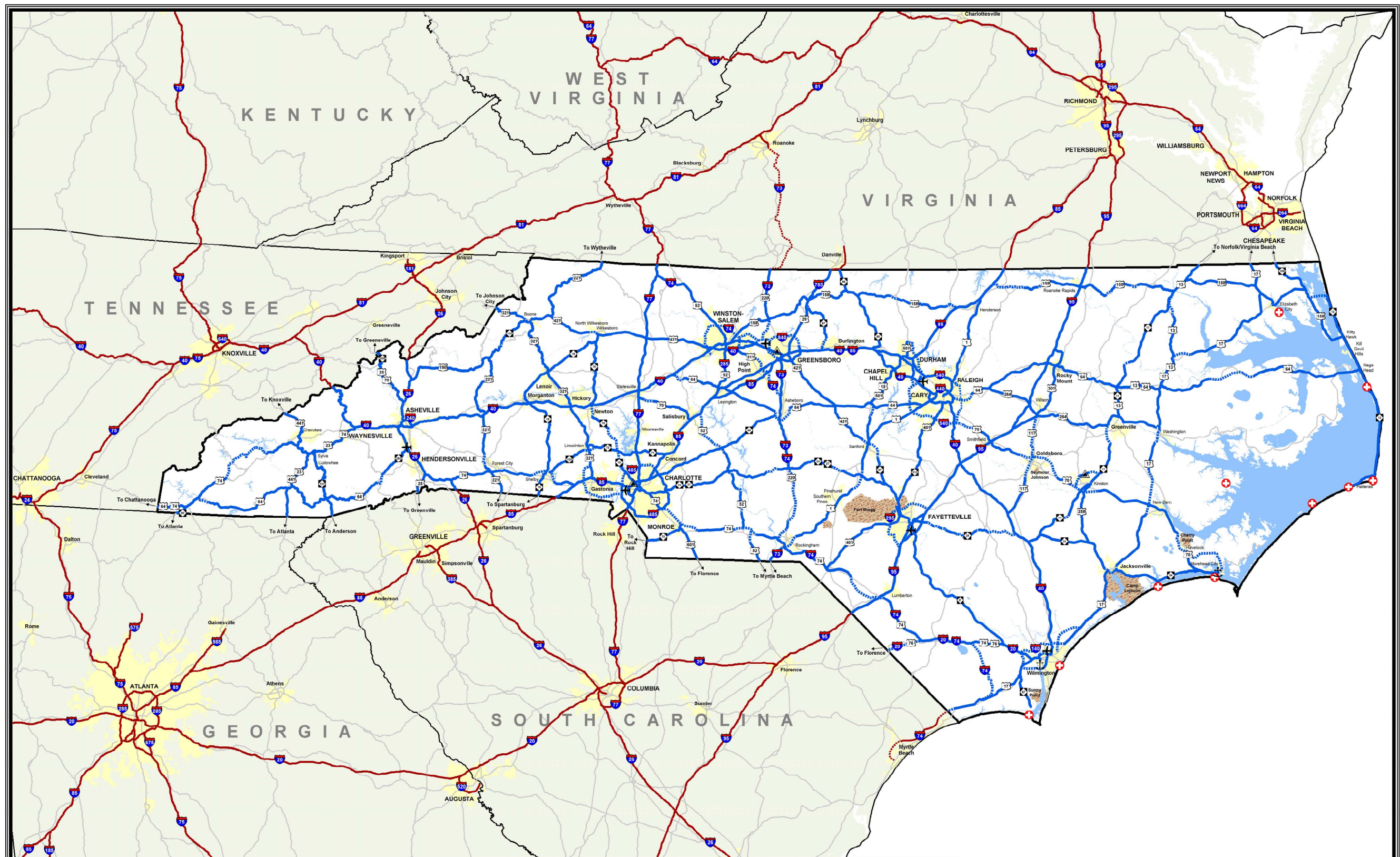
## 2.7 What are the Strategic Highway Corridors?

In a nutshell, the Strategic Highway Corridors are a set of predominantly existing highways vital to moving people and goods to destinations within and just outside North Carolina. The selected or designated Strategic Highway Corridors are shown in Exhibit 19. Exhibit 31 in Chapter 3 lists the 55 major or “parent” corridors along with the associated “spurs” (denoted by letters), totaling 5,378 center-line miles, including all existing and proposed interstates. These corridors only account for approximately 7% (6.82%) of the entire state-maintained highway system (78,844 miles), yet they carry approximately 45% (45.4%) of the state’s traffic (39,417,784,000 VMT of out 86,873,796,000 VMT statewide). “Spurs” include interstate loops and spurs, business interstates, and other major facilities that connect the parent corridor to the activity center or destination. This includes connections to the central business districts of major cities, airports, military bases, and state ports. The selection of these corridors was coordinated with Virginia, South Carolina, Georgia, and Tennessee to ensure connectivity to the appropriate facilities across North Carolina’s borders.





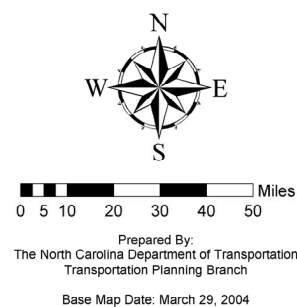
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## Exhibit 19: Designated Corridors

Adopted by The North Carolina  
Board of Transportation

Plan Date: September 2, 2004



### Legend

#### Strategic Highway Corridors

- Existing
- - - - - Currently Planned on New Location
- Interstate
- US/Other Route

- State Port
- Major Airport
- Intermodal Connector
- Coast Guard Station
- Major Military Base
- Urban Area
- Water Features



## Chapter 3 - Corridor Vision

### 3.1 What is the Vision for each of the Corridors?

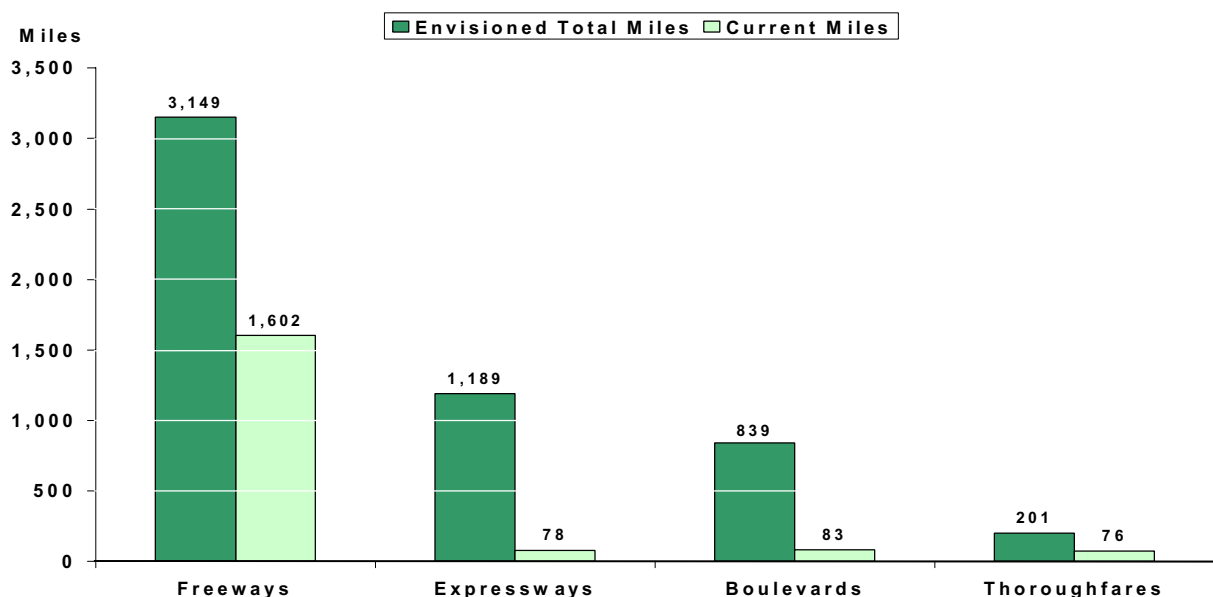
Designating corridors as strategic to North Carolina was just the beginning of developing an initiative to enhance mobility and connectivity. A vision representing the ultimate design and operational picture for each of the 55 Strategic Highway Corridors was established to provide for a better and more consistent decision-making process. The vision for these corridors was created using the NCDOT Facility Types and Control of Access Definitions (Appendix C). The Strategic Highway Corridors Vision Plan (Exhibit 24, with insets Exhibits 25-30) illustrates the recommended facility types for each of the corridors, which can also be found in the Strategic Highway Corridors List (Exhibit 31). Specifically, the Vision Plan shows the facility type proposed for each corridor, i.e., Freeway, Expressway, Boulevard, or Thoroughfare. The facility type proposed is the minimum preferred type and does not preclude the possibility of a facility type which provides greater mobility.

The facility type definitions were developed to create a set of easy to understand and consistent definitions for all roadways for NCDOT and its partners to use in the planning, design, and operations processes. The definitions are primarily based on the function of the roadway, level of mobility and access, and whether the facility has or will have traffic signals, driveways, and/or medians. These definitions were developed from a committee comprised of members from FHWA and the following NCDOT branches: Traffic Engineering, Highway Design, Project Development, and Transportation Planning.

As previously mentioned, one of the goals of the SHC concept is to create a consistent vision for each corridor. However, within certain corridors, the facility type vision may vary based on elements such as the projected use of the facility, terrain or landscape, or the feasibility of constructing a higher facility type. As of September 2004, approximately 1,840 of the 5,378 miles are consistent with the adopted vision. Exhibit 20 indicates the total number of miles envisioned and the current number of miles of each facility type.



Exhibit 20: Strategic Highway Corridors Total Miles by Proposed Facility Type (Sept. 2004)



Although a preferred facility type is shown on the Vision Plan, each corridor must be studied further in order to build a consensus among stakeholders - namely local communities, federal/state resource agencies, regional authorities, and NCDOT - as to the facility's overall function, role, and size/scale of any associated improvements needed. Each corridor is recognized as a unique, independent asset within the state's highway system, and must fit within the context of long-range transportation plans of adjoining local and/or regional areas.

Wherever possible, NCDOT intends to maximize and improve upon the use of existing highway facilities in order to achieve the ultimate vision. This will help minimize impacts to the surrounding natural and human environment, while also reducing the cost of improvements needed to reach the vision. In areas where the vision cannot be achieved due to the magnitude of impacts, sections of roadway on a new location may be constructed. It is intended that any sections built on new location will either be a Freeway, Expressway with limited control of access, or a Boulevard with limited control of access to better manage roadway connections, improve safety, and keep traffic flowing as efficiently as possible. This approach helps to avoid future construction of "a bypass around a bypass."

The potential also exists for certain Freeways to be constructed to interstate design standards to allow for a future interstate designation. Facilities with interstate designations are typically thought to help attract industry and commercial business to a community due to their high-speed design and expected quality of service. Interstates, which are the highest level of Freeways, have the most efficient and safest uniform geometric design and construction standards. These standards include a minimum of four 12-foot wide travel lanes, a minimum right shoulder width of 10 feet, full control of access, and design speeds of 50 to 70 miles per hour (depending on the location).

It is essential to keep traffic flowing on the Strategic Highway Corridors, as they carry a large portion of vehicles in the entire state (see Section 2.7). Engineers will need to design the highway and associated intersections in a manner, which accommodates the anticipated capacity and mobility needs. One such example is to design and construct high-speed/free-flow style interchanges where two or more corridors

meet, as shown in Exhibit 21. This will help reduce congestion in the intersection area and keep traffic flowing efficiently, by separating travel movements.

Exhibit 21: Examples of High-Speed/Free-Flow Style Interchanges (in North Carolina)



The use of access management techniques is crucial to achieving the concept goals and will be implemented throughout the Corridors. Access management is defined as the planning, design, and implementation of land use and transportation strategies that maintain a safe flow of traffic while accommodating the access needs of adjacent development. The goal of access management is to balance the need to provide efficient, safe, and timely travel through the state with the desired ability to allow access to the individual destination. Examples of access management techniques include converting facilities with a continuous center turn lane into a median divided facility (as illustrated in Exhibit 22), consolidating existing median openings and/or converting them to directional crossings (such as a leftover), consolidating or creating shared driveways, constructing rear service roads, and coordinating land use decisions with the transportation function of the highway corridor.

Exhibit 22: An Example of Retrofitting a Thoroughfare into a Boulevard

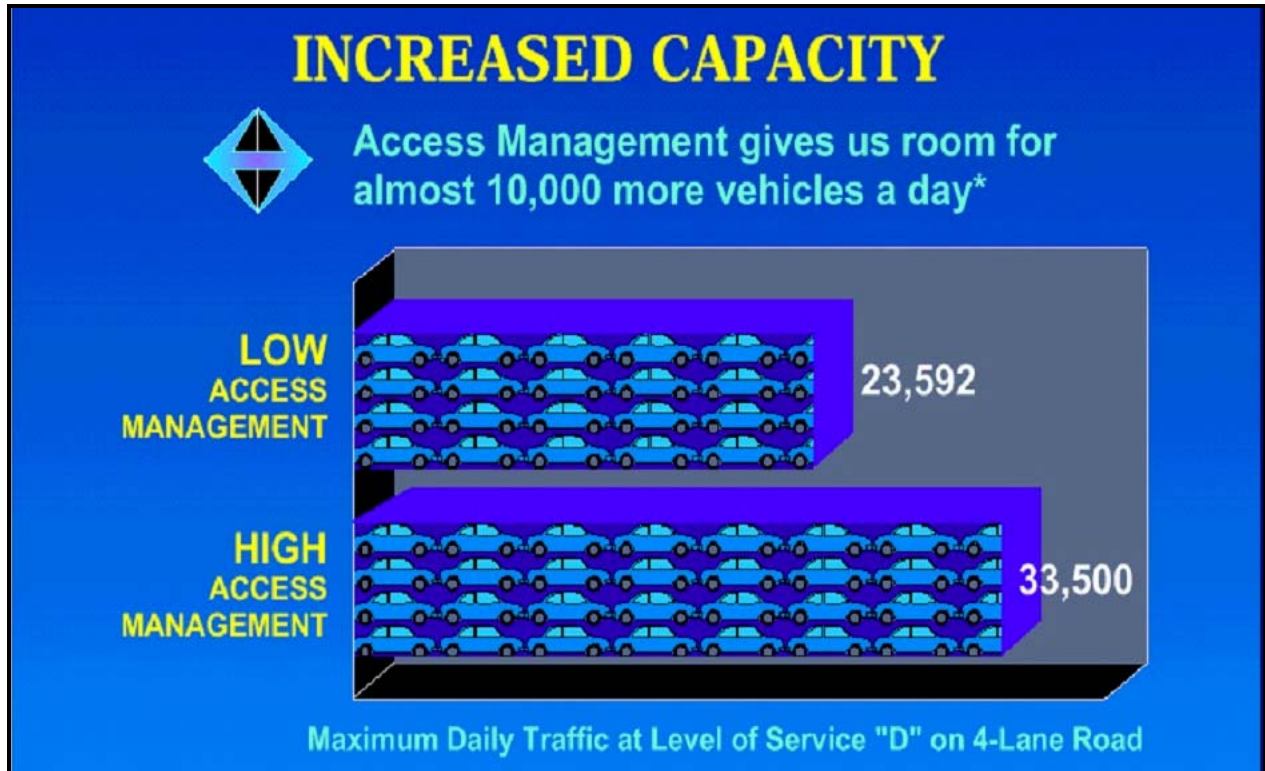


Numerous studies across the United States show the safety and capacity benefits of applying access management techniques. Research indicates that as the number of access points and driveways on a roadway increases, the number of accidents on the facility also increases, while the average speed decreases.<sup>10</sup> Reducing and minimizing the number of access points is critical to obtaining high-speed, safe facilities. Additionally, highly access managed facilities, such as four-lane divided roadways with shared driveways, provide greater capacity than those that are poorly managed, such as five-lane roadways with multiple

<sup>10</sup>Transportation Research Board, *Access Management Manual*, 2003

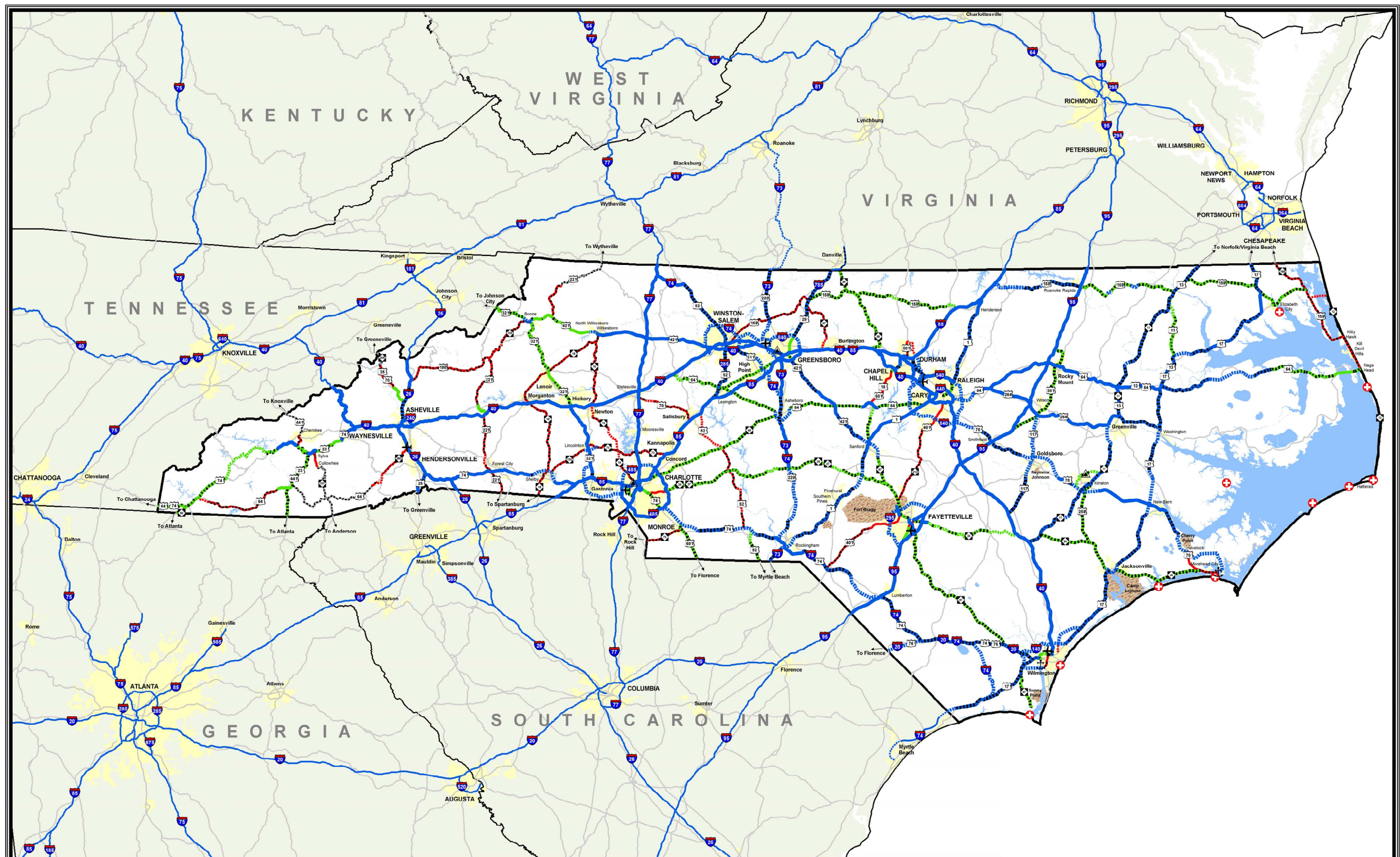
driveway connections. Higher-level managed facilities can provide room for about 10,000 additional vehicles a day as illustrated in Exhibit 23.

Exhibit 23: Increased Capacity Benefits of Access Management



Source: Florida Department of Transportation

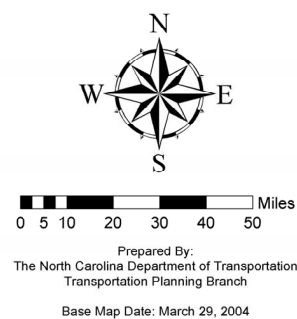




## Exhibit 24: Vision Plan

Adopted by The North Carolina  
Board of Transportation

Plan Date: September 2, 2004



### Legend

**Freeways**  
 — Existing  
 — Needs Upgrade  
 — Recommended

**Expressways**  
 — Existing  
 — Needs Upgrade  
 — Recommended

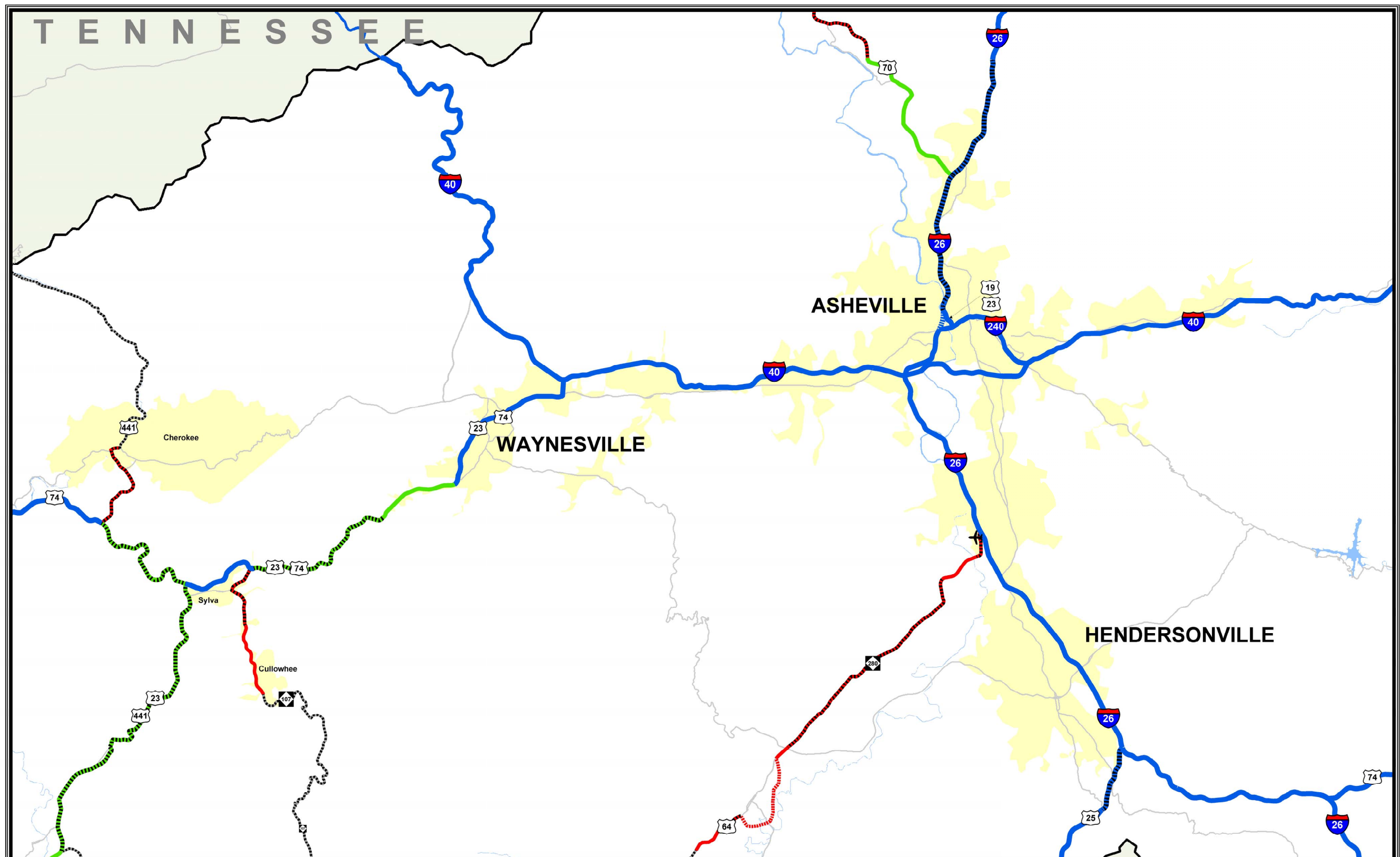
**Boulevards**  
 — Existing  
 — Needs Upgrade  
 — Recommended

**Thoroughfares**  
 — Existing  
 — Needs Upgrade  
 — Recommended

— US/Other Route  
 — State Port  
 — Major Airport  
 — Intermodal Connector  
 — Coast Guard Station  
 — Major Military Base  
 — Urban Area  
 — Water Features



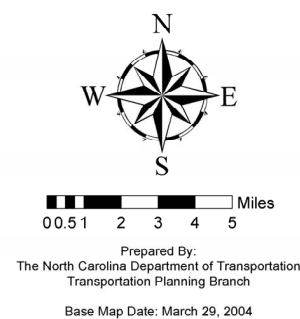




## Exhibit 25: Vision Plan - French Broad River Area

Adopted by The North Carolina  
Board of Transportation

Plan Date: September 2, 2004



### Legend

#### Freeways

- Existing
- Needs Upgrade
- Recommended

#### Expressways

- Existing
- Needs Upgrade
- Recommended

#### Boulevards

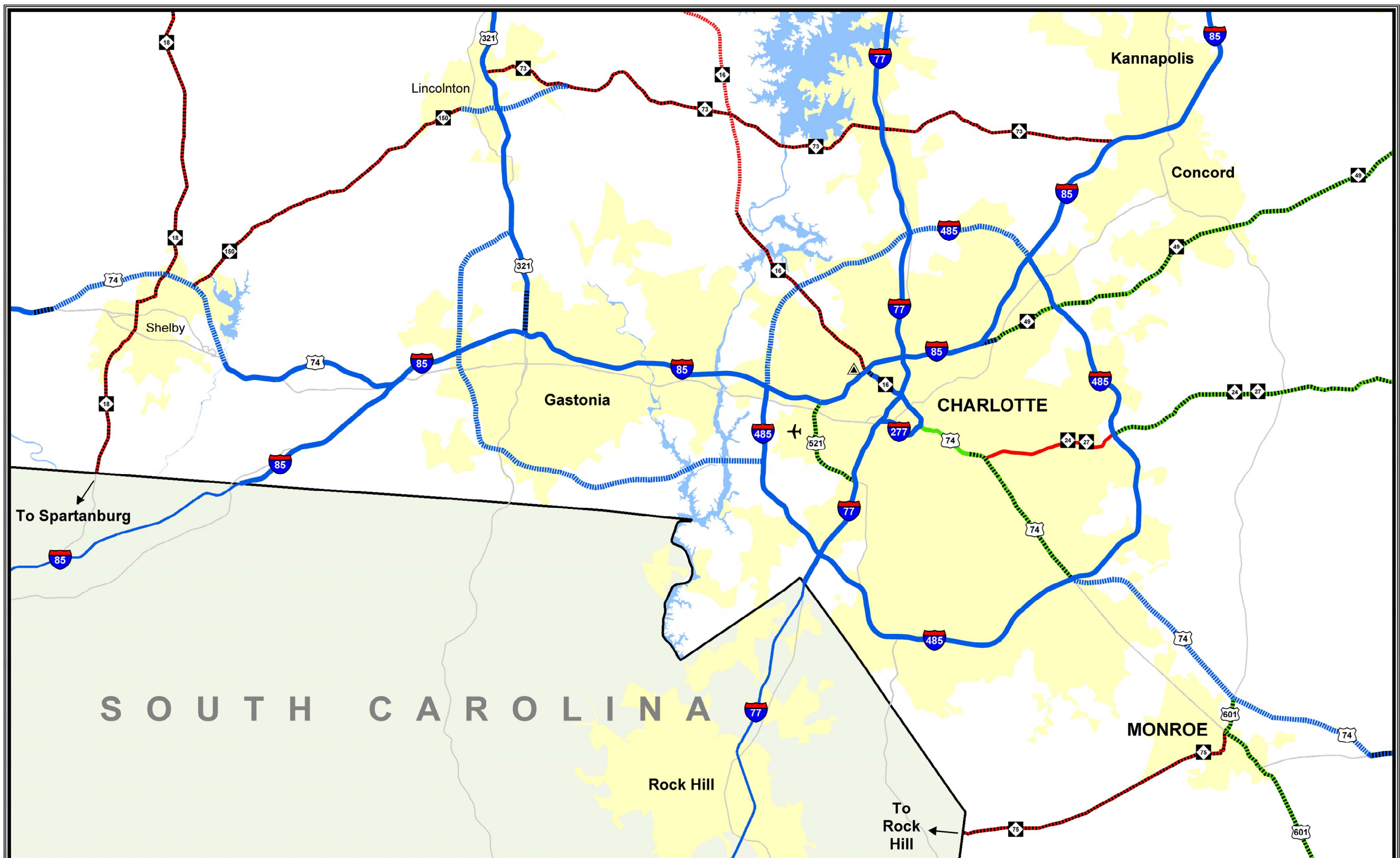
- Existing
- Needs Upgrade
- Recommended

#### Thoroughfares

- Existing
- Needs Upgrade
- Recommended

- US/Other Route
- State Port
- Major Airport
- Intermodal Connector
- Coast Guard Station
- Major Military Base
- Urban Area
- Water Features





**Exhibit 26:  
Vision Plan -  
Metrolina Area**

Adopted by The North Carolina  
Board of Transportation

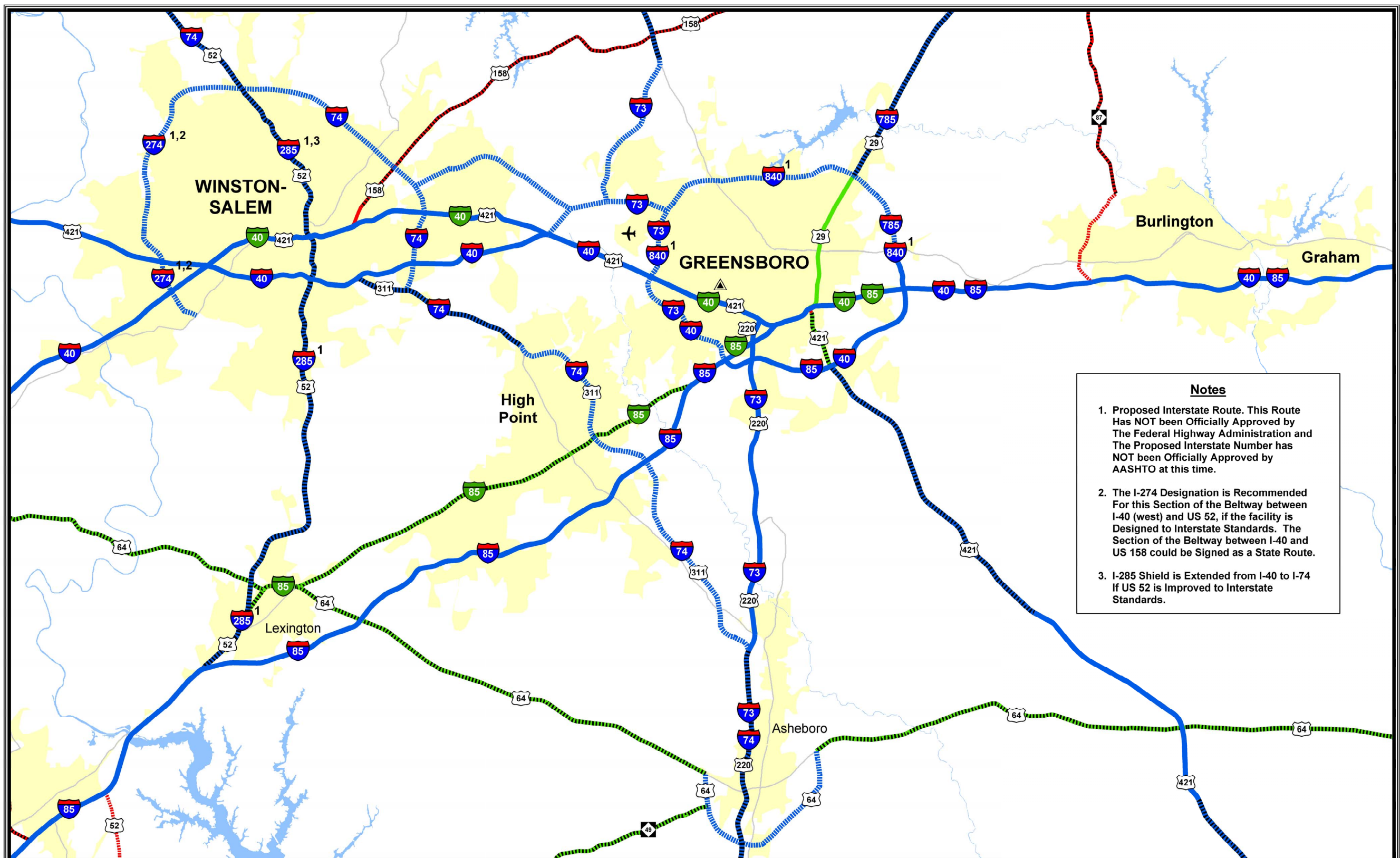
Plan Date: September 2, 2004



- Legend**
- |  |  |  |
|--|--|--|
| <p><b>Freeways</b></p> <p>Existing (Solid Blue Line)</p> <p>Needs Upgrade (Dashed Blue Line)</p> <p>Recommended (Dotted Blue Line)</p>       | <p><b>Boulevards</b></p> <p>Existing (Solid Red Line)</p> <p>Needs Upgrade (Dashed Red Line)</p> <p>Recommended (Dotted Red Line)</p>          | <p>US/Other Route (Thin Grey Line)</p> <p>State Port (Anchor Symbol)</p> <p>Major Airport (Airplane Symbol)</p> <p>Intermodal Connector (Triangle Symbol)</p> <p>Coast Guard Station (Red Cross Symbol)</p> <p>Major Military Base (Brown Square Symbol)</p> <p>Urban Area (Yellow Shaded Area)</p> <p>Water Features (Blue Shaded Area)</p> |
| <p><b>Expressways</b></p> <p>Existing (Solid Green Line)</p> <p>Needs Upgrade (Dashed Green Line)</p> <p>Recommended (Dotted Green Line)</p> | <p><b>Thoroughfares</b></p> <p>Existing (Solid Black Line)</p> <p>Needs Upgrade (Dashed Black Line)</p> <p>Recommended (Dotted Black Line)</p> |  |

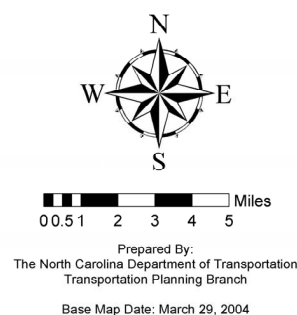






## Exhibit 27: Vision Plan - Triad Area

Adopted by The North Carolina  
Board of Transportation  
Plan Date: September 2, 2004



### Legend

**Freeways**  
— Existing  
— Needs Upgrade  
— Recommended

**Expressways**  
— Existing  
— Needs Upgrade  
— Recommended

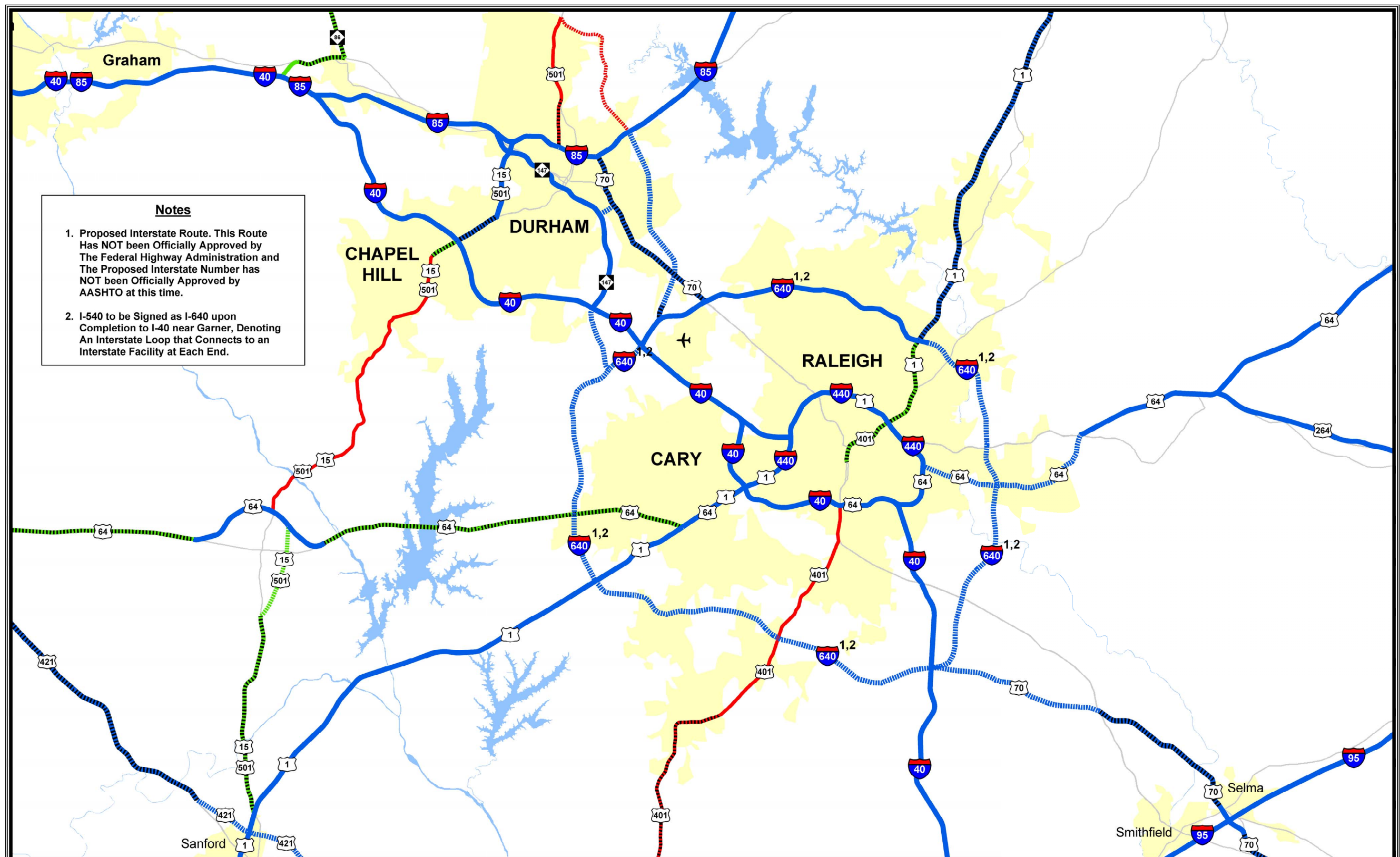
**Boulevards**  
— Existing  
— Needs Upgrade  
— Recommended

**Thoroughfares**  
— Existing  
— Needs Upgrade  
— Recommended

— US/Other Route  
— State Port  
— Major Airport  
— Intermodal Connector  
— Coast Guard Station  
— Major Military Base  
— Urban Area  
— Water Features

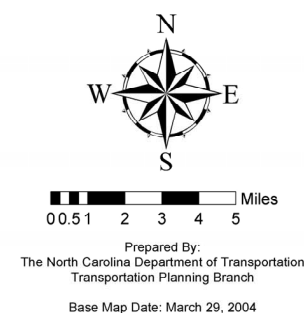






## Exhibit 28: Vision Plan - Triangle Area

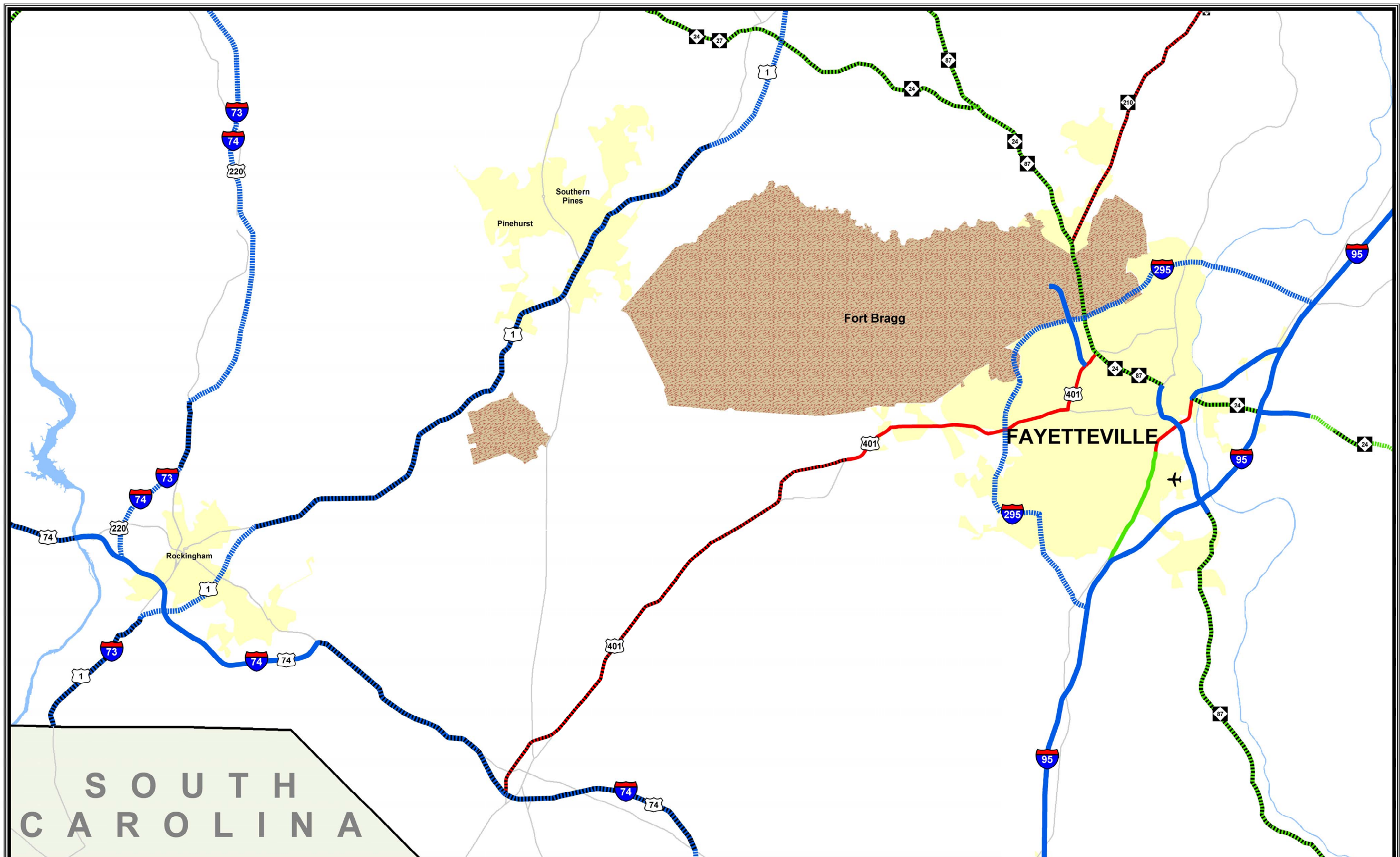
Adopted by The North Carolina  
Board of Transportation  
Plan Date: September 2, 2004



Legend	
<b>Freeways</b>	<b>Boulevards</b>
Existing	Existing
Needs Upgrade	Needs Upgrade
Recommended	Recommended
<b>Expressways</b>	<b>Thoroughfares</b>
Existing	Existing
Needs Upgrade	Needs Upgrade
Recommended	Recommended
US/Other Route	State Port
Major Airport	Intermodal Connector
Coast Guard Station	Major Military Base
Urban Area	Water Features



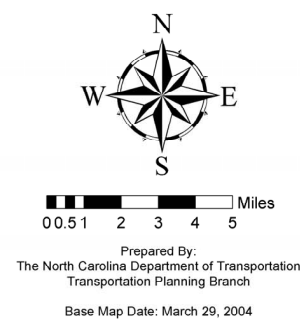




**Exhibit 29:  
Vision Plan -  
Fayetteville Area**

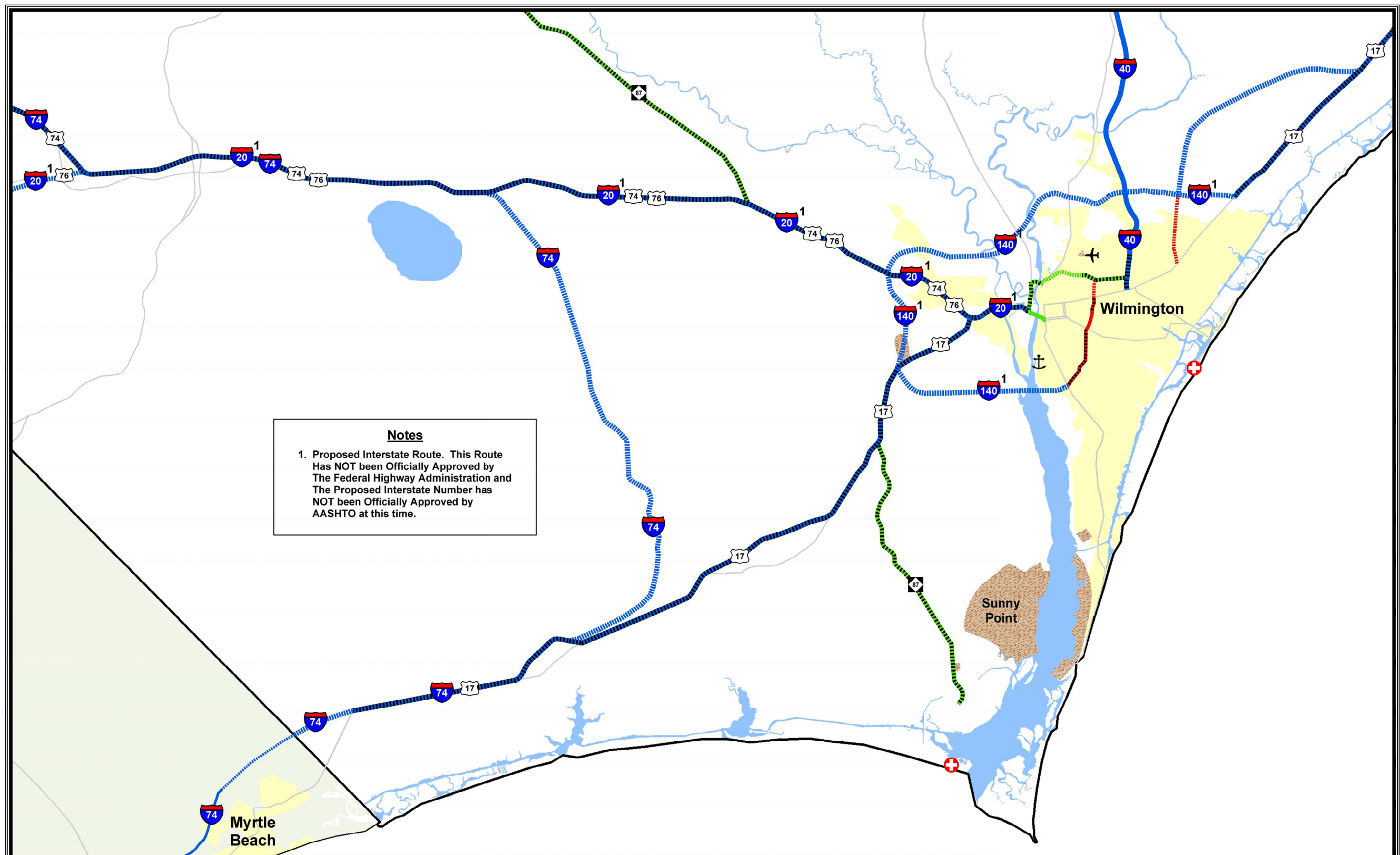
Adopted by The North Carolina  
Board of Transportation

Plan Date: September 2, 2004



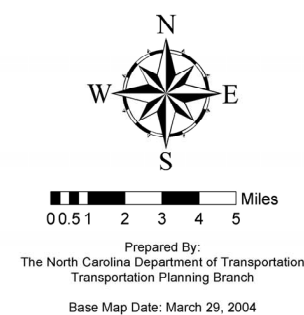
Legend	
<b>Freeways</b>	<b>Boulevards</b>
— Existing	— Existing
- - - Needs Upgrade	- - - Needs Upgrade
... Recommended	... Recommended
<b>Expressways</b>	<b>Thoroughfares</b>
— Existing	— Existing
- - - Needs Upgrade	- - - Needs Upgrade
... Recommended	... Recommended
— US/Other Route	⚓ State Port
✈ Major Airport	⚓ Intermodal Connector
⚓ Coast Guard Station	Major Military Base
Urban Area	Water Features





## Exhibit 30: Vision Plan - Southeastern NC

Adopted by The North Carolina  
Board of Transportation  
Plan Date: September 2, 2004



Legend	
<b>Freeways</b>	<b>Boulevards</b>
Existing	Existing
Needs Upgrade	Needs Upgrade
Recommended	Recommended
<b>Expressways</b>	<b>Thoroughfares</b>
Existing	Existing
Needs Upgrade	Needs Upgrade
Recommended	Recommended
US/Other Route	State Port
Major Airport	Intermodal Connector
Coast Guard Station	Major Military Base
Urban Area	Water Features





Exhibit 31: Strategic Highway Corridors List

Corridor	Length (miles)	Corridor Vision
<b>Corridor 01: Chattanooga, TN to Asheville (US 74, US 64, I-40)</b>	<b>129.14</b>	
US 64/US 74: TN/NC State Line to US 64 in Murphy	20.27	Expressway
US 74: US 64 in Murphy to Bryson City Bypass	46.98	Expressway
US 74: Bryson City Bypass	9.72	Freeway
US 74: Bryson City Bypass to Sylva Bypass	7.56	Expressway
US 74: Sylva Bypass	4.27	Freeway
US 74: Sylva Bypass to End of Waynesville Bypass	12.65	Expressway
US 74: End of Waynesville Bypass to I-40	8.92	Freeway
I-40/US 74: US 74 to I-26	18.77	Freeway
<b>Corridor 02: Chattanooga, TN to Hendersonville (US 64, US 74, NC 280)</b>	<b>137.65</b>	
US 64/US 74: TN/NC State Line to Murphy	20.27	Expressway
US 64: Murphy to West of Franklin	38.08	Boulevard
US 64: West of Franklin to NC 28 at Franklin Bypass	8.22	Expressway
US 64: NC 28 at Franklin Bypass to west of Brevard	46.01	Thoroughfare
US 64: West of Brevard to NC 280	9.08	Boulevard
NC 280: US 64 to I-26	15.99	Boulevard
<b>Corridor 03: Atlanta, GA to Cherokee (NC 60, US 74, US 441)</b>	<b>73.50</b>	
NC 60: GA/NC State Line to US 64/US 74	5.04	Expressway
US 64/US 74: to US 64 in Andrews	6.24	Expressway
US 74: US 64 in Andrews to Bryson City Bypass	46.98	Expressway
US 74: Bryson City Bypass to US 441	9.72	Freeway
US 441: US 74 to US 19 in Cherokee	5.52	Boulevard
<b>Corridor 04: Atlanta, GA to Asheville (US 23, US 441, US 74, I-40)</b>	<b>77.14</b>	
US 23/US 441: GA/NC State Line to US 74	32.53	Expressway
US 74: US 23/US 441 to End Waynesville Bypass	16.92	Expressway
US 74: End of Waynesville Bypass to I-40	8.92	Freeway
I-40/US 74: US 74 to I-26	18.77	Freeway
<b>Corridor 05: Anderson, SC to Knoxville, TN (NC 107, US 74, US 441)</b>	<b>69.99</b>	
NC 107: SC/GA State Line to Cullowhee	28.81	Thoroughfare
NC 107: Cullowhee to US 74	7.71	Boulevard



Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
US 74: End of Sylva Bypass to US 441	7.56	Expressway
US 441: US 74 to US 19 in Cherokee	5.52	Boulevard
US 441: US 19 in Cherokee to NC/TN State Line	16.12	Thoroughfare
<b>Corridor 06: Knoxville, TN to Wilmington (I-40)</b>	<b>423.71</b>	
I-40: TN/NC State Line to NC 132 (North)	421.86	Freeway
I-40 Extension: NC 132 (North) to US 17 (Market Street)	1.85	Freeway
<b>A. Airport Connector</b>	<b>15.99</b>	
Airport Connector: I-74 (W-S Beltway) to I-840 (Greensboro Urban Loop)	14.25	Freeway
I-40 Connector: I-40 to Airport Connector	1.74	Freeway
<b>B. Business I-40 (Winston-Salem)</b>	<b>18.71</b>	
Business I-40: I-40 (West) to I-40 (East)	18.71	Freeway
<b>C. Business I-40 (Greensboro)</b>	<b>13.93</b>	
Business I-40: I-40 (West) to I-40/I-85 (East)		Freeway
<b>D. I-140 (Wilmington)</b>	<b>34.91</b>	
I-140: US 421 (South) to US 17 (North)	34.91	Freeway
<b>E. I-240 (Asheville)</b>	<b>9.26</b>	
I-240: I-40 (West) to I-40 (East)	9.26	Freeway
<b>F. I-440 (Raleigh)</b>	<b>25.21</b>	
I-440: Entire Loop	25.21	Freeway
<b>G. I-540/I-640 (Raleigh)</b>	<b>70.03</b>	
I-540/I-640: Entire Loop	70.03	Freeway
<b>H. I-840 (Greensboro)</b>	<b>20.71</b>	
I-840: I-40 (West) to I-40 (East)	20.71	Freeway
<b>I. US 421, US 117, Martin Luther King Jr. Parkway (Wilmington)</b>	<b>6.78</b>	
US 421: US 74/US 76 to US 117 (Elizabeth Holmes Bridge)	1.50	Expressway
US 117: Elizabeth Holmes Bridge	0.56	Expressway
Martin Luther King Jr. Parkway: Elizabeth Holmes Bridge to I-40 Ext.	4.72	Expressway
<b>J. Independence Boulevard (Wilmington)</b>	<b>5.85</b>	
Independence Boulevard: US 421 (South) to Martin Luther King Jr. Pkwy	5.85	Boulevard

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
<b>K. Triangle Parkway/NC 147 (Durham)</b>	<b>15.62</b>	
Triangle Parkway: I-540 to I-40	3.37	Freeway
NC 147: I-40 to I-85	12.25	Freeway
<b>L. Wade Avenue (Raleigh)</b>	<b>2.90</b>	
Wade Avenue: I-40 to I-440	2.90	Freeway
<b>Corridor 07: Asheville to Greeneville, TN (I-26, US 25, US 70, NC 208)</b>	<b>41.80</b>	
I-26: I-40 to US 25/US 70 in Weaverville	11.57	Freeway
US 25/US 70: I-26 to NC 251	8.65	Expressway
US 25/US 70: NC 251 to NC 208	12.45	Boulevard
NC 208: US 25/US 70 to NC/TN State Line	9.13	Thoroughfare
<b>Corridor 08: Greenville, SC to Asheville (US 25, NC 225, I-26)</b>	<b>31.84</b>	
US 25: SC/NC State Line to NC 225	5.42	Freeway
NC 225: US 25 to I-26	3.49	Freeway
I-26: NC 225 to I-40	22.93	Freeway
<b>Corridor 09: Spartanburg, SC to Johnson City, TN (I-26)</b>	<b>70.12</b>	
I-26: SC/NC State Line to NC/TN State Line	70.12	Freeway
<b>A. US 19/US 23 (Asheville)</b>	<b>1.02</b>	
US 19/US 23: I-240 to I-26	1.02	Freeway
<b>Corridor 10: Asheville to Boone (I-26, US 19E, NC 105)</b>	<b>88.94</b>	
I-26: I-40 to US 19E	21.77	Freeway
US 19E: I-26 to NC 194	37.03	Boulevard
NC 194: US 19E to NC 105	3.87	Boulevard
NC 105: NC 194 to US 321	26.27	Boulevard
<b>Corridor 11: Asheville to Gastonia (I-26, US 74)</b>	<b>92.39</b>	
I-26/US 74: I-40 to US 74	35.02	Freeway
US 74: I-26 to I-85	57.37	Freeway

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
<b>Corridor 12: Spartanburg, SC to Boone (US 221, NC 105)</b>	<b>92.13</b>	
US 221: SC/NC State Line to I-40	35.99	Boulevard
US 221: I-40 to US 70	6.97	Expressway
US 221: US 70 to NC 105	21.00	Boulevard
NC 105: US 221 to US 321	28.17	Boulevard
<b>Corridor 13: Boone to Wytheville, VA (US 421, US 221)</b>	<b>52.38</b>	
US 421: US 321 to End of Boone Bypass	1.25	Freeway
US 421: End of Boone Bypass to US 221	9.15	Expressway
US 221: US 421 to NC 16	16.74	Boulevard
US 221: NC 16 to NC/VA State Line	25.24	Thoroughfare
<b>Corridor 14: Spartanburg, SC to Wilkesboro (NC 18)</b>	<b>91.52</b>	
NC 18: SC/NC State Line to US 421	91.52	Boulevard
<b>Corridor 15: Gastonia to Johnson City, TN (US 321)</b>	<b>96.11</b>	
US 321: I-85 to US 70	33.88	Freeway
US 321: US 70 to Boone Bypass	43.62	Expressway
US 321: Boone Bypass	3.28	Freeway
US 321: Boone Bypass to NC/TN State Line	15.33	Expressway
<b>A. Garden Parkway (Gastonia)</b>	<b>27.78</b>	
Garden Parkway: US 321 (North) to I-485	27.78	Freeway
<b>Corridor 16: Spartanburg, SC to Petersburg, VA (I-85)</b>	<b>235.27</b>	
I-85: SC/NC State Line to NC/VA State Line	235.27	Freeway
<b>A. Aviation Parkway, Northern Durham Parkway (Raleigh/Durham)</b>	<b>18.40</b>	
Aviation Parkway: I-540 to US 70	2.45	Freeway
Northern Durham Parkway: US 70 to I-85	8.01	Freeway
Northern Durham Parkway: I-85 to US 501	7.94	Boulevard
<b>B. Business I-85 (High Point)</b>	<b>30.01</b>	
Business I-85: I-85 (South) to I-85 (North)	30.01	Expressway
<b>C. Business I-85 (Greensboro)</b>	<b>10.13</b>	

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
Business I-85: I-85 (South) to I-40/I-85 (North)	10.13	Freeway
<b>D. East End Connector (Durham)</b>	<b>0.88</b>	
East End Connector: NC 147 to US 70	0.88	Freeway
<b>E. I-485 (Charlotte)</b>	<b>65.80</b>	
I-485: Entire Loop	65.80	Freeway
<b>F. US 501 (Durham)</b>	<b>6.87</b>	
US 501: I-85 to Northern Durham Parkway	6.87	Boulevard
<b>G. US 70 (Durham/Raleigh)</b>	<b>9.75</b>	
US 70: I-85 to I-540	9.75	Freeway
<b>Corridor 17: Shelby to Lincolnton (NC 150)</b>	<b>18.91</b>	
NC 150: US 74 to US 321	18.91	Boulevard
<b>Corridor 18: Charlotte to Wilkesboro (NC 16)</b>	<b>74.99</b>	
NC 16: I-77 to I-85	2.22	Freeway
NC 16: I-85 to US 421	72.77	Boulevard
<b>Corridor 19: Lincolnton to Concord (NC 73)</b>	<b>34.64</b>	
NC 73: US 321 to I-85	34.64	Boulevard
<b>Corridor 20: Boone to Winston-Salem (US 421)</b>	<b>80.69</b>	
US 421: US 321 to End of Boone Bypass	1.25	Freeway
US 421: End of Boone Bypass to NC 16	27.11	Expressway
US 421: NC 16 to I-40	52.33	Freeway
<b>Corridor 21: Rock Hill, SC to Wytheville, VA (I-77)</b>	<b>105.46</b>	
I-77: SC/NC State Line to NC/VA State Line	105.46	Freeway
<b>A: US 521/Billy Graham Parkway (Charlotte)</b>	<b>5.28</b>	
US 521 (Billy Graham Parkway): I-77 to I-85	5.28	Expressway
<b>B: I-277 (Charlotte)</b>	<b>4.47</b>	

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor		Length (miles)	Corridor Vision
I-277: I-77 (South) to I-77 (North)		4.47	Freeway
<b>Corridor 22: Rock Hill, SC to Monroe (NC 75)</b>		<b>15.57</b>	
NC 75: SC/NC State line to US 601		15.57	Boulevard
<b>Corridor 23: Charlotte to Florence, SC (US 74, US 601)</b>		<b>39.25</b>	
US 74: I-277 to I-485		11.57	Expressway
US 74: I-485 to US 601		10.96	Freeway
US 601: US 74 to NC/SC State Line		16.72	Expressway
<b>Corridor 24: Charlotte to Wilmington (US 74)</b>		<b>197.79</b>	
US 74: I-277 to I-485		11.57	Expressway
US 74: I-485 to Cape Fear Memorial Bridge		186.22	Freeway
<b>Corridor 25: Charlotte to Fayetteville (NC 24, NC 27, NC 87)</b>		<b>120.53</b>	
NC 24/NC 27: US 74 to I-485		7.11	Boulevard
NC 24/NC 27: I-485 to NC 87		100.58	Expressway
NC 24/NC 87: NC 87 to I-295 (Fayetteville Outer Loop)		12.84	Expressway
<b>Corridor 26: Charlotte to Raleigh (NC 49, US 64)</b>		<b>131.22</b>	
NC 49 Connector: I-85 to NC 49		0.96	Freeway
NC 49: NC 49 Connector to Asheboro Bypass		59.39	Expressway
US 64: Asheboro Bypass		9.82	Freeway
US 64: Asheboro Bypass to Pittsboro Bypass		30.34	Expressway
US 64: Pittsboro Bypass		8.09	Freeway
US 64: Pittsboro Bypass to US 1		18.82	Expressway
US 1/US 64: US 64 to I-40		3.80	Freeway
<b>Corridor 27: Statesville to Raleigh (I-40, US 64)</b>		<b>136.00</b>	
I-40: I-77 to US 64 in Mocksville		15.70	Freeway
US 64: I-40 in Mocksville to Asheboro Bypass		47.75	Expressway
US 64: Asheboro Bypass		11.50	Freeway
US 64: Asheboro Bypass to Pittsboro Bypass		30.34	Expressway
US 64: Pittsboro Bypass		8.09	Freeway
US 64: Pittsboro Bypass to US 1		18.82	Expressway



Exhibit 31: Strategic Highway Corridors List (continued)

Corridor		Length (miles)	Corridor Vision
US 1/US 64: US 64 to I-40		3.80	Freeway
<b>Corridor 28: Statesville to Salisbury (US 70)</b>		<b>25.41</b>	
US 70: I-77 to I-85		25.41	Boulevard
<b>Corridor 29: Charlotte to Winston-Salem (I-85, I-285, US 52)</b>		<b>71.92</b>	
I-85: I-77 to I-285/US 52		49.10	Freeway
I-285/US 52: I-85 to I-40		22.82	Freeway
<b>Corridor 30: Wytheville, VA to Myrtle Beach, SC (I-74, I-77, US 52, US 311, US 220, US 74)</b>		<b>292.66</b>	
I-74/I-77: NC/VA State Line to I-74		4.71	Freeway
I-74: I-77 to US 52		12.00	Freeway
I-74/US 52: US 52 near Mount Airy to Winston-Salem Beltway		22.29	Freeway
I-74: Winston-Salem Beltway		16.20	Freeway
I-74/US 311: Winston-Salem Beltway to US 220		28.70	Freeway
I-74/US 220: US 311 to US 74		64.02	Freeway
I-74/US 74: I-73/US 220 to I-20/US 74 near Bolton		100.58	Freeway
I-74: I-20/US 74 near Bolton to US 17 near Shallotte		28.66	Freeway
I-74/US 17: US 17 near Shallotte to Carolina Bays Parkway Ext.		12.21	Freeway
I-74 (Carolina Bays Parkway Ext.): US 17 to NC/SC State Line		3.29	Freeway
<b>A. US 52 (Winston-Salem)</b>		<b>11.25</b>	
US 52: I-40 to I-74 (Winston-Salem Beltway)		11.25	Freeway
<b>B. US 311 (Winston-Salem)</b>		<b>2.60</b>	
US 311: I-40 to I-74 (Winston-Salem Beltway)		2.60	Freeway
<b>C. Western Winston-Salem Beltway (Winston-Salem)</b>		<b>16.28</b>	
Western Winston-Salem Beltway: US 158 to I-74/US 52		16.28	Freeway
<b>Corridor 31: Florence, SC to Salisbury (US 52)</b>		<b>73.33</b>	
US 52: SC/NC State Line to US 74 (Wadesboro Bypass)		13.86	Expressway
US 52/US 74: Wadesboro Bypass		3.65	Freeway
US 52: US 74 (Wadesboro Bypass) to I-85		55.82	Boulevard
<b>Corridor 32: Myrtle Beach, SC to Martinsville, VA (I-73, US 220)</b>		<b>137.33</b>	

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
I-73: SC/NC State Line to US 74 (Rockingham Bypass)	8.88	Freeway
I-73/US 74 (Rockingham Bypass): US 74 to US 220	3.70	Freeway
I-73/US 220: US 74 (Rockingham Bypass) to I-85 (Greensboro Urban	79.29	Freeway
I-73 (Greensboro Urban Loop): I-85 to Bryan Boulevard	11.51	Freeway
I-73: I-840 (Greensboro Urban Loop) to NC 68	3.21	Freeway
I-73: NC 68 to US 220	8.28	Freeway
I-73/US 220: US 220/NC 68 Connector to NC/VA State Line	22.46	Freeway
<b>A. US 220 (Greensboro)</b>	<b>2.10</b>	
US 220: I-85 to I-40	2.10	Freeway
<b>Corridor 33: Greensboro to Danville, VA (I-785, I-840, US 29)</b>	<b>39.58</b>	
I-785/I-840 (Greensboro Urban Loop): I-40/I-85 to US 29	6.69	Freeway
I-785/US 29: I-840 (Greensboro Urban Loop) to NC/VA State Line	32.89	Freeway
<b>A. US 29 (Greensboro)</b>	<b>7.45</b>	
US 29: I-40 to I-840/I-785 (Greensboro Urban Loop)	7.45	Expressway
<b>Corridor 34: Rockingham to Raleigh (US 1)</b>	<b>92.85</b>	
US 1: I-74/US 74 to I-40	92.85	Freeway
<b>Corridor 35: Raleigh to Henderson (US 1)</b>	<b>42.63</b>	
US 1: I-440 to I-540	4.90	Expressway
US 1: I-540 to I-85	37.73	Freeway
<b>A. US 401 (Raleigh)</b>	<b>3.28</b>	
US 401: Peace Street to I-440	3.28	Expressway
<b>Corridor 36: Burlington to Danville, VA (NC 87, I-785, US 29)</b>	<b>42.99</b>	
Burlington Western Loop: I-85 to NC 87	5.45	Boulevard
NC 87: Burlington Western Loop to I-785/US 29	18.86	Boulevard
I-785/US 29: NC 87 to NC/VA State Line	18.68	Freeway
<b>Corridor 37: Winston-Salem to Kitty Hawk/Nags Head (US 158)</b>	<b>321.30</b>	
US 158: Business I-40 to I-785/US 29	41.63	Boulevard
US 158: I-785/US 29 to I-85	69.29	Expressway

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
US 158/I-85: I-85 (South) to I-85 (North)	19.32	Freeway
US 158: I-85 to I-95	38.32	Freeway
US 158: I-95 to Jackson Bypass	13.41	Expressway
US 158: Jackson Bypass	2.46	Freeway
US 158: Jackson Bypass to Conway Bypass	9.34	Expressway
US 158: Conway Bypass	3.65	Freeway
US 158: Conway Bypass to US 13 (South)	15.67	Expressway
US 158/US 13: US 13 (South) to US 13 (North)	6.48	Freeway
US 158: US 13 (North) to US 17 (North)	30.55	Expressway
US 158/US 17: US 17 (North) to US 17 (South)	3.70	Freeway
US 158: US 17 (South) to NC 168	23.51	Expressway
US 158: NC 168 to US 64	43.97	Boulevard
<b>Corridor 38: Chapel Hill to Danville, VA (NC 86)</b>	<b>41.90</b>	
NC 86: I-40/I-85 to NC/VA State Line	41.90	Expressway
<b>Corridor 39: Sanford to Durham (US 15, US 501)</b>	<b>42.12</b>	
US 15/US 501: US 1 to US 64 (East)	15.46	Expressway
US 15/US 501/US 64: US 64 (East) to US 64 (West)	1.07	Freeway
US 15/US 501: US 64 (West) to Franklin Street	17.58	Boulevard
US 15/US 501: Franklin Street to I-40	1.50	Expressway
US 15/US 501: I-40 to I-85	6.51	Freeway
<b>Corridor 40: Fayetteville to Greensboro (NC 87, US 421)</b>	<b>97.00</b>	
NC 87: I-95 to NC 24	6.69	Freeway
NC 87: NC 24 to US 421	31.85	Expressway
US 421: NC 87 to I-85 (Greensboro Urban Loop)	55.23	Freeway
US 421: I-85 (Greensboro Urban Loop) to I-40	3.23	Expressway
<b>A: All American Freeway (Fayetteville)</b>	<b>4.70</b>	
All American Freeway: US 401 to Fort Bragg	4.70	Freeway
<b>Corridor 41: Rockingham to Fayetteville (I-74, US 74, US 401)</b>	<b>63.65</b>	
I-74/US 74: US 1 to US 401	22.19	Freeway
US 401: I-74/US 74 to NC 87	41.46	Boulevard

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
<b>Corridor 42: Fayetteville to Raleigh (NC 87, NC 210, US 401)</b>	<b>52.41</b>	
NC 87: I-295 to NC 210	3.87	Expressway
NC 210: NC 87 to US 401	20.11	Boulevard
US 401: NC 210 to I-40	28.43	Boulevard
<b>Corridor 43: Wilmington to Fayetteville (I-20, US 74, NC 87)</b>	<b>82.99</b>	
I-20/US 74: Cape Fear Memorial Bridge to NC 87	17.24	Freeway
NC 87: I-20/US 74 to I-95	65.75	Expressway
<b>Corridor 44: Raleigh to Nags Head (US 64)</b>	<b>185.12</b>	
US 64: I-440 to Columbia	145.78	Freeway
US 64: Columbia to US 158	39.34	Expressway
<b>Corridor 45: Raleigh to Washington (US 264)</b>	<b>99.58</b>	
US 264: I-440 to US 17	99.58	Freeway
<b>Corridor 46: Raleigh to Morehead City (US 70)</b>	<b>142.50</b>	
US 70: I-40 to State Port to End of Havelock Bypass	124.60	Freeway
US 70: End of Havelock Bypass to State Port at Morehead City	17.90	Boulevard
<b>A: Northern Carteret Bypass (Carteret County)</b>	<b>23.37</b>	
Northern Carteret Bypass: US 70 at End of Havelock Bypass to State Port	23.37	Freeway
<b>Corridor 47: Fayetteville to Morehead City (NC 24, US 70)</b>	<b>145.61</b>	
NC 24: Business I-95 to I-95	3.59	Expressway
NC 24: I-95 to East of I-95	2.60	Freeway
NC 24: East of I-95 to I-40 (West)	43.59	Expressway
NC 24/I-40: I-40 (West) to I-40 (East)	6.09	Freeway
NC 24: I-40 (East) to NC 11 (North)	5.88	Freeway
NC 24: NC 11 (North) to Jacksonville Bypass	34.57	Expressway
NC 24: Jacksonville Bypass	4.93	Freeway
NC 24: Jacksonville Bypass to US 70	37.17	Expressway
US 70: NC 24 to State Port at Morehead City	7.19	Boulevard

Exhibit 31: Strategic Highway Corridors List (continued)

Corridor		Length (miles)	Corridor Vision
<b>Corridor 48:</b>	<b>Florence, SC to Petersburg, VA (I-95)</b>	<b>181.36</b>	
	I-95: SC/NC State Line to NC/VA State Line	181.36	Freeway
	<b>A. Business I-95 (Fayetteville)</b>	<b>15.15</b>	
	Business I-95: I-95 (South) to East Mountain Drive	6.23	Expressway
	Business I-95: East Mountain Drive to NC 24	3.58	Boulevard
	Business I-95: NC 24 to I-95 (North)	5.34	Freeway
	<b>B. I-295 (Fayetteville)</b>	<b>33.54</b>	
	I-295: I-95 (South) to I-95 (North)	33.54	Freeway
	<b>C. US 301/NC 4 (Wilson, Rocky Mount)</b>	<b>45.51</b>	
	I-95 (South) to I-95 (North)	45.51	Expressway
<b>Corridor 49:</b>	<b>Florence, SC to Wilmington (I-20, US 76, US 74)</b>	<b>66.56</b>	
	I-20: SC/NC State Line to US 74/US 76 near Whiteville	14.62	Freeway
	I-20/US 74/US 76: US 74 near Whiteville to Cape Fear Memorial Bridge	51.94	Freeway
<b>Corridor 50:</b>	<b>Wilmington to Wilson (I-40, NC 403, US 117, US 264)</b>	<b>114.50</b>	
	I-40 Extension: US 17 (Market Street) to NC 132 (North)	1.85	Freeway
	I-40: NC 132 (North) to NC 403	63.20	Freeway
	NC 403: I-40 to US 117	2.67	Freeway
	US 117: NC 403 to US 264	41.22	Freeway
	US 264: US 117 to I-95	5.56	Freeway
<b>Corridor 51:</b>	<b>Myrtle Beach, SC to Wilmington (I-74, US 17, I-20, US 74)</b>	<b>48.17</b>	
	I-74 (Carolina Bays Parkway Ext): SC/NC State Line to US 17	3.29	Freeway
	US 17: I-74 to I-20/US 74	40.75	Freeway
	US 17/I-20/US 74: US 17 to Cape Fear Memorial Bridge	4.13	Freeway
	<b>A. NC 87 (Brunswick County)</b>	<b>15.13</b>	
	NC 87: Sunny Point Army Terminal to US 17	15.13	Expressway
<b>Corridor 52:</b>	<b>Wilmington to Norfolk, VA (US 17)</b>	<b>205.34</b>	
	US 17: I-140 (East) to NC/VA State Line	205.34	Freeway



Exhibit 31: Strategic Highway Corridors List (continued)

Corridor	Length (miles)	Corridor Vision
<b>A. Military Cutoff Road Extension</b>	<b>3.54</b>	
Military Cutoff Road Ext.: US 17 to I-140	3.54	Boulevard
<b>B. Hampstead Bypass</b>	<b>12.96</b>	
Hampstead Bypass: I-140 to US 17 (North)	12.96	Freeway
<b>Corridor 53: Wilmington to Norfolk, VA (I-40, NC 24, NC 11, US 13)</b>	<b>200.38</b>	
I-40 Extension: US 17 (Market Street) to NC 132 (North)	1.85	Freeway
I-40: NC 132 (North) to NC 24 (East)	47.40	Freeway
NC 24 (East): I-40 to NC 11	2.82	Freeway
NC 11: NC 24 to US 13 (North) in Greenville	70.25	Freeway
US 13/NC 11: US 13 (North) in Greenville to US 64	12.58	Freeway
NC 11: US 64 to US 13 near Ahoskie	48.15	Freeway
US 13: NC 11 near Ahoskie to NC/VA State Line	17.30	Freeway
<b>A. Felix Harvey Parkway (Kinston)</b>	<b>13.87</b>	
Felix Harvey Parkway: US 70 (Kinston Bypass) to NC 11	13.87	Expressway
<b>B. US 13 (Windsor to Ahoskie)</b>	<b>26.79</b>	
US 13: US 17 to NC 11	26.79	Expressway
<b>Corridor 54: Jacksonville to Kinston (US 258)</b>	<b>41.10</b>	
US 258: US 17 to NC 11	41.10	Expressway
<b>Corridor 55: Hatteras to Norfolk, VA (NC 12, US 158, NC 168)</b>	<b>119.94</b>	
NC 12: Hatteras Ferry Terminal to US 158	57.65	Thoroughfare
US 158: NC 12 to NC 168	43.97	Boulevard
NC 168: US 158 to NC/VA State Line	18.32	Boulevard
<b>A. NC 12/Mid-Currituck Bridge (Corolla)</b>	<b>25.96</b>	
NC 12: US 158 (South) to Mid-Currituck Bridge	18.82	Thoroughfare
Mid-Currituck Bridge: NC 12 to US 158	7.14	Boulevard

## Chapter 4 - Implementation

The Strategic Highway Corridors Vision Plan provides a roadmap for an enhanced core highway network throughout North Carolina. In order to achieve the envisioned facility types and the goals of the SHC concept, a series of implementation strategies must be enacted. Success of the SHC concept depends on sustained multi-agency partnerships throughout the process. Implementation is focused in the following areas, each of which is discussed below:

- Education
- Long-Range (Systems-Level) Planning
- Project Planning and Design
- Corridor Access (Driveways and Traffic Signals)
- Land Use
- Corridor Protection

### 4.1 How will Stakeholders Learn about this Concept?

NCDOT and its partners will initiate an education process to inform stakeholders of the SHC concept and its effect on their daily activities. The initial step requires the development of an action plan to determine who needs to be informed, in what forum this will occur, and by whom. A collective group of officials representing intra and interdepartmental agencies is recommended to provide executive level oversight and structure to the education process. The initial outreach should focus on MPOs, RPOs, and internal staff within NCDOT and its partner agencies, including transportation decision-makers and staff in the following organizations:

- Federal Highway Administration (FHWA)
- North Carolina Department of Commerce (NCDOC)
- North Carolina Department of Environmental and Natural Resources (NCDENR)
- North Carolina Division of Marine Fisheries (DMF)
- North Carolina Division of Coastal Management (DCM)
- North Carolina Division of Water Quality (DWQ)
- North Carolina State Historic Preservation Office (SHPO)
- North Carolina State Ports Authority (NCSPA)
- North Carolina Wildlife Resources Commission (NCWRC)
- United States Army Corps of Engineers (USACE)
- United States Environmental Protection Agency (USEPA)
- United States Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NOAA)

Regional presentations, forums, or summits will be an effective way to inform other stakeholders of the concept. Education needs to occur on a continuous basis to ensure that those involved are aware of the latest activities and policies.

## 4.2 How will this Concept be Incorporated into the Long-Range Planning Process?

A two-pronged effort will be enacted to incorporate the SHC concept into the long-range (systems-level) planning process. The first approach centers on the development of Comprehensive Transportation Plans, while the second approach focuses on preparing a series of corridor-level studies.

### Comprehensive Transportation Plans

A comprehensive transportation plan (CTP) is a mutually adopted, multimodal transportation planning set of vision maps that serves present and anticipated travel demand in a safe and effective manner, for a local area, metropolitan planning area, or county. A CTP is comprised of four vision maps: highway, public transportation and rail, bicycle, and in the future, pedestrian. A cover map provides pertinent information regarding the plan adoption and subsequent updates and revisions. The development of the recommendations for a CTP is contained in a corresponding report.

In relation to a CTP, the SHC Vision Plan is thought of as the highway element of a statewide CTP. Both local CTPs and the SHC concept utilize the NCDOT Facility Types, with only a slight difference in the illustration of Thoroughfares. Engineers and planners developing CTPs should cross-reference the SHC Vision Plan in order to ensure plan consistency. This practice should help provide consistent recommendations on corridors between and through planning areas. Incorporating the statewide and regional mobility goals and the desired vision of SHC concept should be done in a manner that fits with the character and vision for the community or county. If this cannot be achieved through the use of existing facilities, an alternative solution should be sought.

### Corridor Studies

A corridor study is essentially a master plan to guide improvements and development in a manner that helps protect the intended function of the corridor. Corridor studies examine and address issues of strategic importance to the long-term function and character of a transportation corridor. Typically these studies focus on areas such as corridor analysis, alternatives development and selection, visioning, implementation, and partnering agreements. The purpose of a study is to develop a plan that addresses current and future (short-term and/or long-term) transportation needs for a particular corridor. Such plans are developed and oriented in a collaborative manner in order to best achieve overall stakeholder agreement on the future of a corridor.

The majority of corridor studies in North Carolina will be performed on designated Strategic Highway Corridors. The studies will be developed in a manner to aid in achieving the long-term or ultimate vision for the Corridor. Each Strategic Highway Corridor is unique in regards to its function, purpose, and manner in which it fits into the framework of the national, statewide, and regional transportation system. In developing a corridor study, there is no “one size fits all” solution: each study should be scoped in a way that incorporates the uniqueness of the individual corridor; however all studies should contain the following elements:

- Analysis of the existing corridor

- Purpose and need for improvements
- Coordination with partnering agencies and other key stakeholders
- Public outreach and involvement
- Alternatives development and analysis
- Implementation or action plan

Additional elements should be considered for achieving specific goals of a corridor study:

- Access management or operations analysis (primarily for existing sections)
- Functional or conceptual design for improvements (primarily for existing sections)
- Land use analysis
- Systems-level environmental analysis
- Indirect and cumulative impacts analysis (ICI)
- NEPA decision or Record of Decision (ROD)
- Economic impact analysis

Outcomes from corridor studies may be incorporated into or used as supporting information for project-level environmental documents, potentially streamlining the decision-making process. Depending on the level of analysis performed in a corridor study, information provided may assist in reducing the number of alternatives evaluated during the project-level environmental analysis. This may in turn reduce duplication of analysis efforts. The following describes the essential and optional elements included in a corridor study.

## Essential Elements

### *Analysis of Existing Corridor*

**Purpose:** To compile information on the current state of the facility/corridor. Items discussed include:

- The existing facility type(s)/cross-section(s)
- The current travel demand along the facility. This includes the traffic volumes of passengers vehicles and trucks, and depending on the level of analysis, bikes and/or pedestrians
- The degree and type of freight movement (if applicable)
- A level of service (LOS) and capacity analysis along the existing corridor
- A safety/crash analysis
- Manner by which the facility fits within and connects to the rest of the transportation system
- Other existing non-highway modes of transportation (such as a nearby rail facility)

**Outcome:** A Transportation Profile, which presents specific information on the existing state of the corridor under study along with a broad overview of the connecting and surrounding multimodal transportation system. This documentation can be freestanding or be embedded in the corridor study report.

### *Purpose and Need for Improvements*

**Purpose:** To develop the purpose and need for improvements along the corridor. Items discussed include:

- The specific goals of the study
- The selection of the facility as a Strategic Highway Corridor
- The need for improvements along the facility as they relate to the corridor's function as a Strategic Highway Corridor
- The future travel demand along the corridor (autos, trucks, and/or freight movement, and depending on the level of analysis, bikes and/or pedestrians)
- A level of service (LOS) and capacity analysis of the future travel demand

Items discussed in relation to the purpose and need for improvements should be a statement of a transportation problem, not a specific solution. However, the purpose and need for the improvements should be specific enough to generate alternatives that may potentially yield real solutions to the problem. Discussion of the purpose and need serves as a preface and supporting documentation for recommended future improvements that enter the NEPA process. This information can help shape corridor-level recommendations for future improvements and influence individual projects' Purpose and Need Statements.

**Outcome:** A description of the purpose and need for improvements along the corridor, specific to the goals and intent of the corridor study. This documentation, referred to as a Problem Statement, can be freestanding or be embedded in the corridor study report.

### *Coordination with Partnering Agencies and other Key Stakeholders*

**Purpose:** To develop a *mutually agreed upon* solution to the identified transportation problem. Up front coordination and collaboration with partnering agencies and jurisdictions is critical to the success of a corridor study and any subsequent projects. The level of involvement of each partner is determined by the goals and other elements in the corridor study. All stakeholders should be involved from the beginning or inception of the study. Partnering agencies and stakeholders may include, but are not limited to:

- Federal Highway Administration (FHWA)
- Metropolitan Planning Organization(s) (MPOs)
- Rural Planning Organization(s) (RPOs)
- North Carolina Department of Commerce (NCDOC)
- North Carolina Department of Environmental and Natural Resources (NCDENR)
- North Carolina Division of Marine Fisheries (DMF)
- North Carolina Division of Coastal Management (DCM)
- North Carolina Division of Water Quality (DWQ)
- North Carolina State Historic Preservation Office (SHPO)
- North Carolina State Ports Authority (NCSPA)
- North Carolina Wildlife Resources Commission (NCWRC)
- United States Army Corps of Engineers (USACE)
- United States Environmental Protection Agency (USEPA)
- United States Fish and Wildlife Service (USFWS)
- National Marine Fisheries Service (NOAA)
- Local jurisdictions
- Other key stakeholders



**Outcome:** Documented mutually agreed upon solution for the transportation problem.

#### *Public Outreach and Involvement*

**Purpose:** To seek input and comments from the general public regarding all aspects of the corridor study, including the different elements under study and the manner in which it is being conducted. The level of public outreach depends on elements integrated in the study. Public input can be garnered in several ways:

- Informational meetings/presentations (small or large group)
- Workshops or charettes
- Hearings
- Stakeholder interviews
- Media outreach
- Website publication

**Outcome:** A general consensus and community buy-in on a solution for the identified transportation problem will be pursued.

#### *Alternatives Development and Analysis*

**Purpose:** To develop and analyze alternatives that meet the goals, intent, and purpose and need of the corridor study. This task will be performed in coordination and collaboration with the key stakeholders and the general public. Depending on the purpose and need and the intent of the study, the level of effort will vary. For example, if the primary focus of the study is determining the appropriate access management techniques that should be implemented along a corridor, alternatives may be developed solely for accomplishing this goal. Likewise, if the corridor study is a Tiered Environmental Impact Statement (Tiered EIS), alternatives developed might be approximately 100 miles long and 2000 feet wide. Alternatives include a No-Build alternative along with potentially several Build alternatives. In addition, other modes of transportation may be examined as necessary, depending on the intent of the corridor study, such as a Tiered EIS.

An analysis of each of the alternatives developed will occur to determine the best solution(s) that meet(s) the purpose and need and goals of the study. The analysis may include items such as:

- Mobility benefits
- Economic benefits
- Environmental impacts
- Indirect and cumulative impacts
- Cost effectiveness benefits
- Effects on other components in the transportation system
- Travel forecast (if applicable)

**Outcome:** Documentation of the alternatives developed, analyzed, and recommended for implementation.

### *Implementation Plan/Action Plan*

**Purpose:** To develop a plan to implement the recommended improvements. This may include such items as:

- Incorporating study outcomes into transportation plans, programs, and other planning documents/plans (such as local comprehensive transportation or land use plans)
- Prioritization or staging of improvements
- Funding mechanisms
- Federal, state, and local agreements
- Monitoring factors which may affect implementation (such as travel demand and/or safety concerns)

**Outcome:** An implementation/action plan.

### *Optional Elements*

#### *Access Management/Operations Analysis*

**Purpose:** To develop a plan that examines relatively low-cost/small-scale improvements that can be implemented to improve mobility, capacity, and safety along the corridor while balancing the needs of access to parcels along a facility. Typically, this element would be used, although not limited to, existing sections of a corridor with at least four travel lanes. Typical elements examined are:

- Level of access control
- Medians/median openings
- Driveways and access to property
- Traffic signals
- Interchanges (if applicable)
- Speed limits
- Intersections and turn lanes

Recommendations may include:

- Increasing the level of access control
- Consolidating/sharing and/or relocating driveways
- Removing/modifying median openings (such as installing directional median openings)
- Constructing acceleration, deceleration, and/or turning lanes
- Constructing median u-turn intersections (such as a superstreet)

**Outcome:** Documentation and maps showing the recommended improvements (Access Management Plan).

#### *Functional/Conceptual Design*

**Purpose:** To develop potential design(s) of proposed improvements to assist NCDOT and local officials in the decision-making process along the corridor, primarily in regards to future access and future right-

of-way needs. Functional/Conceptual Design is the basic design of any proposed improvements, primarily along existing sections of corridor. Designs may include:

- Short term improvements (such as recommended access management strategies)
- Long-term improvements (including interchanges)
- Additional right-of-way requirements

All designs should meet NCDOT Roadway Design Standards.

**Outcome:** Functional designs of proposed improvements.

#### *Land Use Analysis*

**Purpose:** To examine existing and future land use along the corridor, specifically the relationship between transportation goals and development objectives for the area. Specific recommendations or guidelines may be developed to ensure compatibility between the intended function of the transportation facility and the existing and future land use of adjacent parcels. This includes the relationship of land uses around interchanges.

**Outcome:** Documentation of the existing and future land use and/or guidelines for future development.

#### *Systems-level Environmental Analysis*

**Purpose:** To identify major natural and human environmental features in the corridor, along with the potential impacts of any proposed improvements. The primary tool for this analysis is a Geographic Information System (GIS) and available data which is obtained from the NCDOT GIS Unit and/or North Carolina Center for Geographic Information and Analysis (NCCGIA). This type of analysis can be performed on a broad scale (primarily identification of major features) or can be location specific.

**Outcome:** Documentation and/or mapping of major environmental features and potential impacts.

#### *Indirect and Cumulative Impacts Analysis*

**Purpose:** To examine the effects which are caused by proposed improvements or actions that are later in time or farther removed in distance from the project, but are still reasonably foreseeable. These effects can be impacts on the environment, which results from the incremental impact of the improvement or action when added to other past, present, and reasonably foreseeable future actions.

**Outcome:** Documentation of potential indirect and cumulative impacts (ICI).

#### *NEPA Decision/Record of Decision*

**Purpose:** To achieve a federally approved Record of Decision (ROD) for projects along the corridor, which can help streamline future environmental planning studies. This element is a specific type of corridor study, which incorporates the majority of the previous elements discussed, and is referred to as a Tiered EIS. In a Tiered EIS, examination of a full range of alternatives along the entire corridor occurs, ranging up to several hundred miles in length. The Tiered EIS process is specifically authorized under the federal regulations governing environmental impact statements. This process involves two stages: (1) Tier 1 (systems-level), which analyzes the need for the project and a broad range of potential corridors;

and (2) Tier 2 (project-level), which involves more detailed studies that will determine specific alignments and mitigation measures for the project. This tiered study process is appropriate for certain corridor studies due to the sheer size of the study area and the range of alternatives. Developing a (non-tiered) EIS for a lengthy corridor can become a cumbersome process, resulting in greater confusion for decision-makers and the public. By contrast, the tiered approach is intended to promote informed decision-making and effective public involvement by making it easier for all participants in the process to focus on the critical issues at each stage and to understand the facts that are relevant to those issues.

**Note:** This type of study is relatively new to North Carolina, and is currently being utilized as part of the Southeast High-Speed Rail Project.

**Outcomes:** Tier 1 Draft EIS, Tier 1 Final EIS, and Tier 1 ROD.

### *Economic Impact Analysis*

**Purpose:** To examine the potential benefits and impacts proposed improvements may have on the local and regional economies that are influenced by the corridor. This type of analysis provides federal, state, and local officials necessary information to make decisions on the viability and implementation of such improvements. Areas investigated in this type of analysis include:

- Construction spending
- Travel cost savings
- Market attractiveness
- Quality of life

**Outcome:** Documentation of the Economic Impact Analysis.

The level of analysis on each of the elements discussed depends on the overall goals and intent of the corridor study. For example, if the focus of the study is to develop an Access Management Plan, then the study will include an Access Management/Operations analysis component and potentially the functional design and land use analysis elements. The purpose and need of the study would be significantly different than a Tiered EIS, primarily focusing on short-term measures instead of long-term solutions, while coordination with partnering agencies may entail heavier involvement with local jurisdictions, MPOs, and RPOs, and lighter involvement with other partnering agencies. Similarly a Tiered EIS will focus on the overall problem in the transportation corridor, heavily involve all partnering agencies, and would most likely include a significant level of effort on the majority of elements included in the study, such as an ICI analysis, systems-level environmental analysis, public involvement/outreach, and alternatives development analysis.

### **Cost and Funding**

The cost of a corridor study depends on the goals and intent of the study, the length of the corridor being studied, and the number, type, and level of effort of elements included. Studies can range from tens of thousands of dollars to several million dollars, while taking a few months to several years to complete.

Funding for corridor studies can come from a variety of sources. NCDOT may contribute a portion of funding for a corridor study, but other sources of funding include local municipalities and counties,

MPOs, RPOs, and FHWA. The level and participation of funding from non-NCDOT sources depends on the local interest/desire for a study, along with the type of elements included. Specifically, including a detailed land use analysis may entail a higher portion of funds from the local area. Additionally, developing a cost-sharing agreement for a corridor study will help ensure adequate participation from all parties, as each will have a vested financial stake in the outcome.

## Current Studies

Three corridor studies have recently been completed at this time. The US 64-NC 49 Corridor Study, deemed the pilot Strategic Highway Corridors study, focused on developing an improvement master plan that will enhance the long-term mobility of passengers and freight, foster economic growth and development, relieve congestion on I-40 and I-85, and optimize transportation funding through the central portion of North Carolina. This study examined approximately 200 miles of roadway on US 64 between Raleigh and Statesville and NC 49 between Charlotte and Asheboro. The study consisted of a regional assessment of transportation needs and the evaluation of a broad range of alternative roadway investment strategies to meet those needs. The product is a corridor vision that defines the improvement design concept (major features and characteristics) and scope (range or extent of the proposed action). Included as part of the study outcomes are land use policy guidelines which promote different methods and techniques for developing consistent and compatible land uses along Strategic Highway Corridors. Additionally, general methods for preserving corridors from across the country were examined and documented as a part of this study.

The US 17 Corridor Study in Brunswick County centered on developing and coordinating a plan of innovative alternatives to protect the integrity of and maintain mobility along US 17 from the New Hanover county line to the South Carolina state line. This corridor, situated in one of the fastest growing areas in the state, has seen traffic volumes dramatically increase over the past few years, which will continue as it is the only major artery connecting Wilmington and Myrtle Beach, SC. The Corridor Study primarily focused on analyzing existing and future traffic volumes, developing innovative access management techniques, designing the alternatives studied, and gaining the public's support for the proposed improvements.

The NC 73 Transportation/Land Use study, along NC 73 in Cabarrus and Mecklenburg Counties, is an innovative study which focused on designing a comprehensive land use, urban design, and transportation plan that incorporates existing and anticipated land use and transportation patterns for the eight local governments along the corridor. Most importantly, the plan is tailored to meet the needs and demands of individual communities, while also promoting cohesion along the entire corridor. Issues addressed in the study include: future land use projections, needed roadway improvements on NC 73 and adjoining roads, right of way protection, access management techniques, and land use buffers. The key outcome of the study is a Memorandum of Understanding (MOU) adopted by all participating communities, elected officials, and NCDOT indicating their intent to follow the plan's land use and transportation recommendations. A Council of Planning has been set up to oversee future developments and improvements along the corridor based on the study's recommendations.

Continuing to prepare corridor studies is an essential piece of implementing the SHC concept. NCDOT will prepare recommendations for future corridor studies that will include the Corridors and the corresponding elements that should be studied, along with a prioritization of future studies. Prioritization will focus on the current level of access control along the Corridor, whether the existing facility could be util-



ized to achieve the corridor vision, anticipated growth due to development, anticipated growth due to vehicular traffic, unfunded projects in the Transportation Improvement Program (TIP), and the amount of local support for a study.

### 4.3 How will this Concept Influence Decisions in the Project Planning and Design Process?

A critical step in the SHC implementation process is to incorporate recommendations from the Vision Plan and subsequent CTPs and corridor studies into individual projects. The first part of this process is to examine all projects programmed in the state's TIP that are located along Strategic Highway Corridors. There are 193 projects located along the corridors, according to the 2006-2012 TIP. These include interstate improvements, widening, and new location projects, but not bridge replacement or intersection improvement projects.

The scope and design of these projects will be examined for consistency with the corridor vision. If the current project scope differs from the vision, the project may be modified to fit or bring the current scope closer to the ultimate facility type. Each project will be examined on a case-by-case basis, regarding the level of access control, interchange designs, median openings, driveway locations, and proposed traffic signals. Potential modifications to a project include increasing the amount and level of control of access; modifying interchange designs to allow for high-speed, free-flow movements; closing, relocating, or modifying the design of median openings; consolidating or relocating driveway locations; and modifying traditional signalized four or three-legged intersections to an alternate intersection design, such as the median u-turn.

Efforts will be made to minimize changes to a project's scope, to keep the project on schedule and minimize cost impacts. If a project's schedule or the cost of modifications dictate the magnitude of changes, other options may be pursued. These include implementing the proposed modifications at different times (staging), purchasing additional right-of-way for future improvements, and/or designing the project in a manner which does not preclude the additional improvements needed to attain the ultimate vision. Coordination between NCDOT, partner agencies, local officials, key stakeholders, and the public is essential during this process and will occur in the appropriate manner. While delays and cost increases may occur as a result of modifications, the ultimate vision may be achieved sooner, rather than developing a future TIP project to make additional improvements to attain the vision.

The second part of this implementation item is developing new TIP projects in a manner which considers the long-term vision and goals of the SHC concept, from the beginning of the project development process. Engineers should develop project scopes and make design decisions that are consistent with the corridor vision, including the preparation of Purpose and Need Statements and the development and evaluation of alternatives. Purpose and Need Statements should demonstrate how the project meets the criteria set forth in the SHC concept and describes the need for improvements to corridor as they relate to the corridor's function and vision. Alternatives should be developed and analyzed in a manner which reflects the mobility and connectivity goals of the vision, while attempting to maximize the use of existing infrastructure. New projects will be carefully monitored to ensure consistency with the ultimate vision over the project's life.

## 4.4 How will this Concept Affect Access to the Corridors?

The level of mobility along a corridor depends on the amount of access to the facility. Generally speaking, the greater the number of access points, the lower the level of mobility, safety, and capacity. Therefore, facilities with a limited number of access or entry and exit points, such as Freeways and Expressways, typically have the ability to move vehicles in a safer, more efficient manner, at the intended speed. Critical to the success of attaining the vision for the corridors is the ability to limit access or impediments to these corridors such as driveways and traffic signals. Both items create conflicts that compromise the level of mobility and safety along corridors.

### Driveway Permits

NCDOT recognizes landowners have certain rights of access consistent with their needs. North Carolina is considered an abutter's right state, which allows for each individual landowner to have access to a public roadway. Applicants requesting a connection to the State Highway System must do so according to the rules and regulations of the *Policy on Street and Driveway Access to North Carolina Highways*<sup>11</sup>, also referred to as the Driveway Manual. However, requests for access to a Strategic Highway Corridor will be given careful attention and reviewed thoroughly to ensure the mobility, carrying capacity, and safety of the Corridor are not compromised by any proposed or modified driveway. Every effort will be made to provide alternate access to a public facility not designated as a Strategic Highway Corridor, if one is available. Additionally, every effort will be made to combine and consolidate access points and provide connectivity through shared property access. Approval of a permit on a Strategic Highway Corridor will be noted with the following statement (or one similar to):

"The North Carolina Board of Transportation has identified [Name of Facility] as a Strategic Highway Corridor. In order to protect the safety, mobility and traffic carrying capacity of this Strategic Highway Corridor, the approved access along [Name of Facility] may be closed or relocated if an alternative access is developed in the future or if any safety concerns or other traffic impacts arise."

Changes are expected to be made to the Driveway Manual to reflect the importance of the Strategic Highway Corridors. These include strengthening the rules and regulations governing access to the Corridors and providing additional guidance on the sharing and consolidation of driveways to these facilities.

### Traffic Signals

Equally important to maintaining or increasing the level of mobility along a facility is limiting the installation of traffic signals along corridors. While the purpose of a traffic signal is to control the movement and right-of-way of traffic, while protecting the safety of motorists and pedestrians, they also impede motorists using the facility, particularly those on the major facility traveling through the intersection. NCDOT will thoroughly examine each request for a traffic signal along a Strategic Highway Corridor, whether the proposed signal is located at a public roadway or an entrance to a private development. This is to ensure that the mobility, carrying capacity, and safety of the corridor are not compromised by the proposed traffic signal. First and foremost, alternative solutions to a proposed signal will be pursued, including constructing an interchange and/or limiting access on the connecting street to right-in/right-out

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<sup>11</sup> North Carolina Department of Transportation, *Policy on Street and Driveway Access to North Carolina Highways*, July 2003.

only, depending on the anticipated traffic volumes. If it is determined that a traffic signal is required (due to safety or financial reasons), even on a temporary basis, every effort will be made to limit the number of phases at the signal. Additionally the intersection may be designed to incorporate the median u-turn or superstreet concept.

It is anticipated that NCDOT will develop guidance to assist engineers reviewing requests for traffic signal installation along Strategic Highway Corridors. This may include the development of guidance on alternative intersection designs not only for engineers reviewing requests, but also for engineers designing improvements along the Corridors.

## 4.5 What Efforts will be made to Integrate the Concept with Land Use Planning?

Consistent and compatible land use decisions are needed to support the goals of the SHC concept. Striking a balance between competing land uses and transportation objectives is a necessary task to ensure that mobility is maintained along these key facilities. Controlling development, which involves adopting and implementing land use policies, is largely the responsibility of local governments. With North Carolina investing millions of dollars in major transportation improvements every year, it is not surprising that the state has an interest in protecting its investments through land use policy as well. For example, NCDOT does not want to make major improvements along a Corridor, only to see the level of mobility, safety, and capacity decrease years later due to construction of multiple strip developments. However, the specific activities that can be undertaken at the state level to ensure such protection are limited. Thus, methods will be explored for cohesively integrating land use and transportation goals along a Corridor.

One such product has already been prepared as part of the US 64-NC 49 Corridor Study entitled, *Land Use Policy Guidelines for Mobility Protection*<sup>12</sup>. This report summarizes a broad range of land use policies that can guide the decision-makers in protecting the mobility of roadways, particularly Strategic Highway Corridors, and identify the ways in which those policies can be translated into action at all levels of government. The policies developed in this report will be shared with the local partners along the Corridors and will be frequently referred to as corridor studies are prepared. Additional mechanisms will be developed to assist NCDOT and local officials in making consistent and compatible land use decisions along the Corridors. One such tool is developing state and local agreements and partnerships upon completion of a corridor study, which would indicate intent to follow the study outcomes and recommendations. The Memorandum of Understanding adopted following completion of the NC 73 Transportation/Land Use Study, is one example of this mechanism. Additionally, indirect and cumulative impacts of proposed major improvements along a corridor may be examined.

## 4.6 How will the Corridors be Protected?

Managing development along Strategic Highway Corridors is essential for achieving the long-term vision for each facility. When a federally-funded new or expanded roadway is planned, an approval process conducted according to NEPA determines whether the transportation corridor is acceptable, given its environmental impacts. This process aims to minimize negative impacts on the environment made by the final alignment of a corridor. Under the current system, acquisition of the land needed for the right-of-

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<sup>12</sup>This report can be found as Chapter 9 in the US 64-NC 49 Corridor Study Report or as a standalone document.

way of the transportation facility is intended to begin once the alignment is approved according to NEPA. In fact, FHWA restricts right-of-way acquisitions before the NEPA process is completed, with the intent of avoiding prejudicing the environmental approval process. However, NEPA approval of a corridor can take many years; if land within the planned right-of-way is not set aside during this time period, development may occur within the corridor, which may prompt the need for a new location to be considered. In some cases this new location will negatively impact environmentally sensitive areas, or nearby neighborhoods. Relocation also requires that plans be redrawn and project development be postponed, increasing the cost of the project. Alternatively, if the corridor is not relocated, development that occurs within it will require transportation agencies to pay much higher prices for land that has been improved while the NEPA process has been underway. Thus, the very process that is meant to ensure that corridor alignments are appropriate may allow private development to occur within the preferred alignment, directing transportation improvements onto sensitive sites or costing NCDOT far more than is necessary.

In order to avoid development of properties within planned rights-of-way, state, regional, and entities must find ways to protect key sections of Strategic Highway Corridors until improvements are implemented without superseding the requirements of either NEPA or FHWA. This can include finding ways to protect the corridor without acquiring the properties, such as exercising police power or reaching agreements with property owners. Alternatively, NCDOT or its partners can find ways to acquire key properties within the parameters of NEPA, such as following completion of the first tier of a Tiered EIS.

Whether corridor protection occurs through acquisition in accordance with NEPA requirements or through methods that are not restricted by NEPA, it is key to avoiding the environmental and capital costs of delaying any control over the planned corridor until NEPA approvals are completed. While corridor protection is not appropriate or necessary in all cases, it is crucial along Corridors likely to experience significant development pressure in the near future.

NCDOT will work with its partners to develop and refine various tools, techniques, and strategies for protecting the Strategic Highway Corridors. This includes various measures to obtain control of or protect the right-of-way for planned improvements and to preserve the mobility, safety, and capacity of existing roadways through the use of access management techniques. Additionally, NCDOT will investigate statewide initiatives to purchase control of access and acquire advanced rights-of-way along these corridors.

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## Chapter 5 - Next Steps

As noted at the beginning on this document, the SHC concept was unanimously adopted by the North Carolina Board of Transportation on September 2, 2004 as a part of the Statewide Transportation Plan. Adoption and inclusion of this concept in the Statewide Plan was the result of a continuous and collaborative effort of NCDOT management and staff, BOT members, and other partner agencies. Building on the cooperation and momentum in jointly developing the SHC concept, the Secretaries from NCDOT, NCDOT, NCDENR, and the Governor signed the Strategic Highway Corridors Policy Statement (Exhibit 33) endorsing the concept in December 2004. This statement focuses on the three primary themes of the concept: Mobility and Connectivity, Economic Prosperity, and Environmental Stewardship (as discussed in Chapter 2). Additionally, all projects on Strategic Highway Corridors have been noted in the 2006-2012 TIP further recognizing the importance of the concept. With the adoption and endorsement of the concept, this effort can now be referred to as the Strategic Highway Corridors initiative.

The next steps in carrying the SHC initiative forward are to act upon the items discussed in Chapter 4. To assist with the implementation process, particularly the education component, NCDOT has created the Strategic Highway Corridors Brochure, as shown in Appendix D. Successful implementation of the items requires a multi-agency partnership in place to work collaboratively and cooperatively to overcome and resolve issues and challenges that might arise. *It is important to note that these items and the Vision Plan will be implemented over time with no anticipated completion date.* While education is the first task that should be fully implemented, action on the other items should occur in a parallel manner. Resources will need to be identified for implementing each task, including personnel and funding for developing and preparing corridor studies, managing access (in terms of driveway permits and traffic signal installations), and corridor protection. Other items, which may be initiated in conjunction with this effort, include:

- Changing North Carolina General Statutes to follow through on some of the implementation objectives
- Coordinating long-range planning efforts for future interstate corridors with FHWA and regional and local entities
- Developing related guides and standards (not mentioned in Chapter 4), including Access Management and/or Interchange guidelines and standards
- Introducing new TIP projects to help achieve the adopted vision for a corridor. These may stem from CTPs, corridor studies, and/or requests from MPOs, RPOs, or BOT members.

It is also proposed that any suggested modifications to the Vision Plan be evaluated in concert with future Statewide Transportation Plan updates. Additionally, *it is important to note that this initiative is a tool to provide better and consistent planning and design decisions on key highway facilities in North Carolina.* This initiative currently is not proposed to affect project funding or the way projects are prioritized.

This report is the first major piece to describe the development of the SHC concept. A future critical task is the documentation of the selection and characteristics of each Corridor. This will serve many purposes including: justification for inclusion of the facility as a Corridor, information for Purpose and Need and Problem Statements, and information for the development of recommendations for future corridor studies. Individual Corridor documentation will include the role of the Corridor in the overall transportation system, the activity centers which the Corridor connects, the level of developmental and vehicular growth along the Corridor, and other items of notable importance. Continued documentation of all activities, tasks, decisions, and other items of notable importance, is essential during the evolution of this initiative for future decision-makers, engineers, planners, and other stakeholders.

NCDOT has created a website for the Strategic Highway Corridors initiative located at <http://www.ncdot.org/doh/preconstruct/tpb/shc> (see Exhibit 32). This site provides a comprehensive and dynamic resource for all information related to the initiative including all corridor studies and projects. As the initiative continues to evolve, the Strategic Highway Corridors website will be updated with the latest activities and documents.

Exhibit 32: Strategic Highway Corridors Website





mobility & connectivity  
economic prosperity  
environmental stewardship

## POLICY

It is the policy of the North Carolina Department of Transportation (NCDOT), in partnership with the North Carolina Department of Commerce and the North Carolina Department of Environment and Natural Resources to recognize and further study a set of Strategic Highway Corridors. These Corridors, as identified and described in the Strategic Highway Corridors Concept Report, articulate a new planning focus for North Carolina. They represent a tool to enhance the mobility function of critical highway facilities and provide an opportunity for each Agency to proactively partner with stakeholders and the public to consider long-term vision, consistency in decision-making, land use partnerships, and overarching design and operational improvements.

The Strategic Highway Corridors concept represents the first major implementation step to be advanced under the update of North Carolina's Long-Range Statewide Multimodal Transportation Plan. Consistent with the Plan's 25-year investment direction, Strategic Highway Corridors recognizes the need to improve and maximize the use of a distinct set of existing highways. These Corridors are critical to statewide mobility and connectivity and promote a vision of modern, efficient transportation supportive of economic opportunities and environmental excellence.

*Adopted by the North Carolina Board of Transportation September 2, 2004*

## PURPOSE

*Promote statewide economic prosperity and support the department's environmental stewardship goals*

*Preserve North Carolina's taxpayer investment in critical highway corridors*

*Enhance major corridor mobility within and to destinations just outside North Carolina*

*Enhance connectivity of intrastate and interstate travel*

*Partner with stakeholders and all vested Agencies to create an up front vision for each Corridor*

*Identify a desired facility type for each Corridor as  
Freeway, Expressway, Boulevard, or Thoroughfare*

*Influence Systems Planning, Funding, Project Planning, Design, Access Management, and Local Land Use decisions along Corridors to achieve broader goals*

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## Glossary of Terms

**401 Permit:** Part of the Clean Water Act this permitting process is a certification of the water quality standards of the state. It can be applied to wetlands protection.

**404 Permit:** Part of the Clean Water Act, it allows states to designate specific areas as a disposal site for dredged or fill material.

**Access:** The ability to reach or connect to a transportation facility (e.g. from an individual property or another mode).

**Access Management:** The planning, design, and implementation of land use and transportation strategies that maintain a safe flow of traffic while accommodating the access needs of adjacent development. The goal of Access Management is to balance the need to provide efficient, safe, and timely travel with the desired ability to allow access to the individual destination.

**Access Management Plan:** A plan showing the location, and in some cases the design, of access for every parcel on a major roadway segment or within an interchange area, which is often jointly developed and adopted by state agencies and local jurisdictions that have control over land development in the affected area.

**Activity Centers:** Destinations that encompass statewide, regional, and places outside of North Carolina's borders that serve the state's citizens.

**Affected Environment:** The physical features, land, area, or areas to be influenced, or impacted, by an alternative alignment under consideration. This term also includes various social and environmental factors and conditions pertinent to an area.

**Agency Coordination:** A general term referring to the process whereby government agencies are afforded an opportunity to review and comment upon transportation proposals.

**Air Pollutants:** Substances in air that could, at high enough concentrations, harm human beings, animals, vegetation or material. Air pollutants may include forms of matter of almost any natural or artificial composition capable of being airborne. They may consist of solid particles, liquid droplets or gases, or combinations of these forms.

**Air Quality Standards:** Levels of air pollutants prescribed by regulations that may not be exceeded during a specified time in a defined area.

**Alternative:** One of a number of specific transportation improvement proposals, alignments, options, design choices, etc., in a defined study area. For a transportation project, alternatives to be studied normally include the no-action alternative, an upgrading of the existing roadway alternative, new transportation routes and locations, transportation systems management strategies, multimodal alternatives, if warranted, and any combinations of the above.

**Alternative Access:** The ability of any vehicle to enter a roadway indirectly through a roadway of lower classification.

**Alternatives Analysis:** Comparative analysis of the social, economic and environmental impacts and benefits for alternatives on a proposed action.

**Annual Average Daily Traffic (AADT):** The total volume of traffic on a highway segment for one year, divided by the number of days in the year.

**Appalachian Development Highway System (ADHS):** A system of highways in Appalachia (200,000-square-mile region that follows the spine of the Appalachian Mountains from southern New York to northern Mississippi) designed to generate economic development in previously isolated areas, supplement the Interstate System, connect to the Interstate System, and provide access to areas within the Region as well as to markets in the rest of the nation.

**Arterial:** A class of roads serving major traffic movements (high-speed, high volume) for travel between major points.

**Average Daily Traffic (ADT):** Total volume during a given time period (in whole days), greater than one day and less than one year, divided by the number of days in that time period.

**Avoidance Alternative:** general term used to refer to any alignment proposal which has been either developed, modified, shifted, or downsized to specifically avoid impacting one or more resources.

**Backage Road:** A local street or road running parallel to an arterial for service to abutting properties and for controlling access to the arterial which provides land access to the rear lot line for the property. Arterial frontage becomes the rear lot and the buildings front the backage road.

**Boulevard:** A facility with a functional purpose of moderate mobility and low to moderate access. The facility has limited or partial control of access, traffic signals, and a minimum of two travel lanes with a median. Connections are provided primarily at at-grade intersections for major and minor cross streets.

**Brownfield:** Abandoned, idled, or underused industrial or commercial facilities where expansion or re-development is complicated by real or perceived environmental contamination.

**Capacity:** A transportation facility's ability to accommodate a moving stream of people or vehicles in a given time period.

**Categorical Exclusion (CE):** A classification given to federal aid projects or actions, which do not individually or cumulatively have a significant impact on the environment. Categorical Exclusions do not require extensive levels of environmental documentation.

**Clean Air Act (CAA):** Purpose is to "protect and enhance the quality of the Nation's air resources." Its primary programs regulate the release of contaminants to air from new and existing polluting facilities.

**Clean Air Act Amendments of 1990 (CAAA):** Federal legislation passed in 1990 that amended the Clean Air Act. It strengthened ability of EPA to set and enforce pollution control programs aimed at protecting human health and the environment; included provisions for acid rain program.

**Clean Water Act (CWA):** Objective is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." One of the act's major enforcement tools is the National Pollutant Discharge Elimination System permit.

**Coastal Zone:** Land and waters adjacent to the coast that exert an influence on the uses of the sea and its ecology or, inversely, whose uses and ecology the sea affects.

**Collector:** In rural areas, routes that serve intracounty rather than statewide travel. In urban areas, streets that provide direct access to neighborhoods and arterials.

**Command-and-Control Policy:** Environmental policy that relies on regulation (permission, prohibition, standard setting and enforcement) as opposed to financial incentives, that is, economic instruments of cost internalization.

**Comment Period:** Duration of time during which written comments or responses may be submitted to an agency that has distributed a document for review and comment. It can be applicable to all types of documents that are circulated, as well as to formal presentations such as those, which may be given by transportation department officials at a public hearing.

**Commercial Service Airport:** Public airport that annually enplanes 2,500 or more passengers and receives scheduled airline passenger service.

**Common Property Resources:** Environmental natural resources owned and managed collectively by a community or society rather than by individuals.

**Comprehensive Transportation Plan (CTP):** A mutually adopted, multimodal transportation planning set of vision maps (highway, public transportation & rail, bicycle, and pedestrian) that serves present and anticipated travel demand in a safe and effective manner.

**Conformity:** Process to assess the compliance of any transportation plan, program, or project with air quality implementation plans. The conformity process is defined by the Clean Air Act.

**Congestion Mitigation & Air Quality Improvement Program (CMAQ):** A categorical federal-aid funding program created to fund projects that contribute to meeting national air quality standards. CMAQ funds generally may not be used for projects that result in the construction of new capacity available to single-occupant vehicles.

**Connectivity:** The ability to travel to desired destinations.

**Control of Access:** The regulation of public access rights to and from properties abutting and public streets crossing highway facilities. Also see Full Control of Access, Limited Control of Access, Partial Control of Access, and No Control of Access.

**Corridor:** A broad geographical land area that is linear, connects major sources of trips, and may contain a number of streets, highways, transit lines, and routes; generally follows an interstate, greenway, or major roadway.

**Corridor Protection:** The coordinated application of various measures to obtain control of or protect the right-of-way for a planned transportation facility and to preserve the capacity of existing roadways through access management.

**Corridor Study:** A study that examines and addresses issues of strategic importance to the long-term

function and character of a transportation corridor; typically includes elements such as visioning, corridor analysis, alternatives development and selection, implementation plan, and partnering agreements.

**Cross-section:** A basic description of type of roadway. Includes at a minimum the number of lanes and whether the roadway has a median or two-way left turn lane.

**Design Speed:** A selected speed used to determine the various geometric design features of the roadway. The assumed design speed should be a logical one with respect to topography, the adjacent land use, the classification of the highway, and the anticipated operating speed (usually 5 mph less than design speed).

**Direct Effects:** Effects caused by a given action and occurring at the same time and place. Changes in noise levels, fill discharges in wetlands, and changes in visual conditions are examples of direct effects.

**Directional Median Opening:** An opening in a restrictive median that provides for specific movements and physically restricts other movements.

**Driveway Permit:** A permit required for all street and driveway connections to the State Highway System. Approved by NCDOT, sometimes with additional approval by the local government.

**Economic Prosperity:** The ability to move people and goods efficiently making for a more competitive business climate, while providing a good quality of life for those employed.

**Ecosystem Enhancement Program (EEP):** NCDOT and NCDENR partnered to create the Ecosystem Enhancement Program, in order to deal with a rapidly expanding transportation program that would impact acres of wetlands and streams. The EEP protects the state's natural resources through the assessment, restoration, enhancement, and preservation of ecosystem functions, and through identifying and implementing compensatory mitigation programmatically, at the watershed level.

**Efficient Transportation Decision-Making (ETDM):** Process developed by the state of Florida, is used to accomplish transportation planning and project development within its current statutes and regulations. The ETDM process creates linkages between land use, transportation and environmental resource planning initiatives through early, interactive agency involvement which is expected to improve decisions and greatly reduce the time, effort and cost.

**Enplanement:** An aviation industry term that refers to a person getting on or off a plane at a gate within a designated airport.

**Environmental Assessment (EA):** Analytical process that systematically examines the possible environmental consequences of the implementation of projects, programs, and policies.

**Environmental Degradation:** Deterioration in environmental quality from ambient concentrations of pollutants and other activities and processes such as improper land use and natural disasters.

**Environmental Health Indicators:** Indicators that describe the link between environment and health by measuring the health effect due to exposure to one or several environmental hazards.

**Environmental Impact Statement (EIS):** Report developed as part of the National Environmental Policy Act (NEPA) requirements, which details any adverse economic, social, and environmental effects of a proposed transportation project for which federal funding is being sought. Adverse effects could include



air, water, or noise pollution; destruction or disruption of natural resources; adverse employment effects; injurious displacement of people or businesses; or disruption of desirable community or regional growth. A Draft (DEIS) and Final (FEIS) document are prepared. The FEIS must address comments received on the DEIS, making any appropriate revisions or decisions and, identify (if not identified in the DEIS) and describe the preferred alternative and the basis for the decision.

**Environmental Impacts:** Direct effects of socio-economic activities and natural events on the components of the environment.

**Environmental Justice Populations:** Historically ethnic and low-income groups who do not typically participate in the planning process and have been under-represented and/or underserved by the transportation system.

**Environmental Monitoring:** The continuous or periodic assessment of the actual and potential impact of any activity on the environment.

**Environmental Protection:** Any activity to maintain or restore the quality of environmental media through preventing the emission of pollutants or reducing the presence of polluting substances in environmental media.

**Environmental Restoration:** Reactive environmental protection. It includes (a) reduction or neutralization of residuals, (b) changes in the spatial distribution of residuals, (c) support of environmental assimilation and (d) restoration of ecosystems, landscape and so forth.

**Environmental Stewardship:** Striving to preserve and enhance our natural and cultural resources by maximizing the use of the existing transportation infrastructure with the support of compatible land uses (NCDOT Environmental Stewardship Policy context).

**Environmental Streamlining:** An initiative aimed at identifying ways that transportation and environmental agency representatives can more effectively work together in a collaborative and cooperative manner to avoid unnecessary delays in processing environmental documents, approvals and permits. The environmental streamlining provision is contained in the federal transportation law passed in 1998, the Transportation Equity Act for the 21st Century (TEA-21). This provision calls on federal agencies to jointly develop a coordinated environmental review process for transportation projects. Because major transportation projects are affected by dozens of federal, state, and local requirements administered by a multitude of agencies, improved interagency cooperation is critical to the success of environmental streamlining. By streamlining, NCDOT and partnering agencies can improve the efficiency of the project development and delivery process, as well as increase the predictability of the project schedule and cost, without compromising the quality of the environment.

**Environmentally Sensitive Areas:** An area of environmental importance having natural resources which if degraded may lead to significant adverse, social, economic or ecological consequences. These could be areas in or adjacent to aquatic ecosystems, drinking water sources, unique or declining species habitat, and other similar sites.

**Erosion:** Wearing away of the land by running water, rainfall, wind, ice or other geological agents, including such processes as detachment, entrainment, suspension, transportation and mass movement. Geologically, erosion is defined as the process that slowly shapes hillsides, allowing the formation of soil cover from the weathering of rocks and from alluvial and colluvial deposits. Erosion is often intensified

by land-clearing human activities related to farming, resident and industrial development and it has as effect increasing run-offs, decline of arable layers, siltation in lakes, lagoons and oceans.

**Expansion:** Activities focused on adding capacity of new facilities/services.

**Expressway:** A facility with a functional purpose of high mobility and low to moderate access. The facility has limited or partial control of access, no traffic signals, and a minimum of 4 travel lanes with a median. Connections are provided only at interchanges for major cross streets and at-grade intersections for minor cross streets.

**Facility Type:** A classification for highways in terms of the character of service that individual facilities are providing or are intended to provide, including the level of access, ranging from travel mobility to land access. Facility Types include Freeways, Expressways, Boulevards, and Thoroughfares.

**Finding Of No Significant Impact (FONSI):** Environmental document for proposed projects where it has been determined through the circulation of an Environmental Assessment that a project will not have a significant impact on the environment.

**Freeway:** A facility with a functional purpose of high mobility and low access. The facility has full control of access, no traffic signals, no driveways, and a minimum of 4 travel lanes with a median. Connections are provided only at interchanges for major cross streets. All cross streets are grade-separated.

**Frontage Road:** A public or private drive that generally parallels a public roadway between the right-of-way and the front building setback line. The frontage road provides access to private properties while separating them from the arterial roadway. Also see Service Road.

**Full Control of Access:** Connections to a facility provided only via ramps at interchanges. All cross-streets are grade-separated. No private driveway connections allowed. A control of access fence is placed along the entire length of the facility and at a minimum of 1000 feet beyond the ramp intersections on the Y lines (minor facility) at interchanges (if possible).

**Functional Design:** A general design that includes horizontal and vertical alignments, edge of pavements, slope stakes, and right of way limits. No turn lanes are added at this stage. This type of design is usually performed using orthophotographs.

**Grade-Separation:** The use of a bridge structure and its approaches to confine portions of traffic to different elevations, thus dividing or separating the crossing movement.

**Greenfield:** Property in both rural and urban areas that has not been previously developed. It also includes forestry and agricultural land and buildings, as well as previously developed sites, which have now blended into the natural landscape over time.

**Hurricane Evacuation Route:** Major facilities that shall be used to evacuate people from coastal areas in the event of a hurricane; developed by the North Carolina Division of Emergency Management.

**Idle Land:** Land that was cultivated but is now in a state of disuse; abandoned land; fallow land.

**Indirect and Cumulative Impacts (ICI):** Impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regard-

less of what agency (federal or non-federal) or person undertakes such other actions. Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

**Infill Development:** Development that takes place on vacant or under utilized parcels within an area that is already characterized by urban development and has access to urban services.

**Intelligent Transportation Systems (ITS):** Advanced traffic operations and communications technologies that increase traffic flow on existing facilities, improve safety, and provide better and more accurate traveler information.

**Interagency Leadership Team (ILT):** Their purpose is to address Goal #1 of the FHWA/NCDOT Joint Work Plan for Timely Program Delivery with Environmental Excellence. The goal is to: "develop and implement an action plan that demonstrates NCDOT, FHWA, and resource agency commitment to deliver NC's transportation program in a timely manner with environmental excellence." The mission of the ILT is "to develop an interagency plan for North Carolina to balance successfully mobility, natural and cultural resource protection, community values, and economic vitality at the confluence of our missions". Partners include: FHWA, USACE, USEPA, USFWS, NOAA, NCDOT, NCDOT, NCDOT, NCDENR, NCDOT, and the NCWRC.

**Interchange:** A system of interconnecting roadways in conjunction with one or more grade separations that provides for the movement of traffic between two or more roadways or highways on different levels (with ramps).

**Intermodal:** Interconnectivity between various types (modes) of transportation.

**Intermodal Surface Transportation Efficiency Act (ISTEA):** Landmark federal legislation signed into law in 1991. It made broad changes in the way transportation decisions are made by emphasizing diversity and balance of modes as well as the preservation of existing systems and construction of new facilities. The law expired in 1997, but much of the program were carried forward by the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21).

**Intermodal Terminals:** Location where people or goods transfer from one mode to another.

**Interparcel Circulation:** The ability of vehicular traffic to circulate between adjacent parcels without reentering a public roadway.

**Intersection:** The general area where two or more highways join or cross, including the roadway and roadside facilities for traffic movements within the area. The three general types of highway crossings are at-grade intersections, grade separations without ramps, and interchanges.

**Interstate:** A full control of access Freeway of at least four lanes designated by USDOT as part of the Interstate System. Interstates are the highest form of Freeways and have uniform geometric and construction standards, which include a minimum of four 12-foot wide travel lanes, a minimum shoulder width, full control of access, and design speeds of 50 to 70 miles per hour.

**Interstate System:** Formally known as the Dwight D. Eisenhower National System of Interstate and De-

fense Highways, it is the system of highways that connects the principal metropolitan areas, cities, and industrial centers of the United States. Also connects the United States to internationally significant routes in Canada and Mexico.

**Interstate Loops and Spurs:** Interstate connectors or full or partial circumferential beltways around an urban area. These highways carry a three-digit number.

**Investing Support for Resource Agencies:** NCDOT funds 21 positions with state and federal resource agencies for staff dedicated to review of environmental projects. The funded positions include the following: 22 positions at NCDENR; three at NCWRC; three at NCDCR, three at USFWS, and two at USEPA.

**Just-in-Time Delivery:** A method of production and inventory cost control based on the delivery of parts and supplies at the precise time they are needed in a production process.

**Land Use Plan:** A plan that establishes strategies for the use of land to meet identified community needs.

**Land Use:** Refers to the manner in which portions of land or the structures on them are used, i.e. commercial, residential, retail, industrial, etc.

**Land-use Classification:** Classification providing information on land cover, and the types of human activity involved in land use. It may also facilitate the assessment of environmental impacts on, and potential or alternative uses of, land.

**Level of Service (LOS):** 1) A qualitative assessment of a road's operating conditions. For local government comprehensive planning purposes, LOS means an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. LOS indicates the capacity per unit of demand for each public facility. 2) This term refers to a standard measurement used by transportation officials which reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F.

**Limited Control of Access:** Connections to a facility provided only via ramps at interchanges (major crossings) and at-grade intersections (minor crossings and service roads). No private driveway connections allowed. A control of access fence is placed along the entire length of the facility, except at intersections, and at a minimum of 1000 feet beyond the ramp intersections on the Y lines (minor facility) at interchanges (if possible).

**Long Range Transportation Plan (LRTP):** A document resulting from regional or statewide collaboration and consensus on a region or state's transportation system, and serving as the defining vision for the region's or state's transportation systems and services. In metropolitan areas, the plan indicates all of the transportation improvements scheduled for funding over the next 20 years.

**Maintenance:** Regular, routine roadway and bridge treatments that sustain highway conditions.

**Master Plan:** Contains all recommended operational, design, access, and land use improvements that support a corridor vision.

**Median:** The portion of a highway separating opposing directions of travel, not including two-way left-

turn lanes; can be non-traversable (a physical barrier, such as a concrete barrier or landscaped island) or traversable (does not physically discourage or prevent vehicles from crossing it, such as a painted median).

**Merger 01:** The melding together of 404 regulations and NEPA for current projects. One of the goals of the Merger 01 process is to incorporate regulatory requirements into the NEPA decision-making process. The Merger 01 process is also designed to improve interagency coordination and it is an effort to streamline the project development and permitting processes.

**Metropolitan Planning Organization (MPO):** A federally mandated transportation policy-making entity made up of representatives from local government and transportation authorities for urban areas with populations greater than 50,000. MPOs are responsible for developing long-range transportation plans and Transportation Improvement Plans (TIP) for their respective regions, while ensuring transportation projects and programs are based on a comprehensive, cooperative, and continuing (3-C) planning process.

**Mitigation:** The process of moderating the impact(s) a project has on the environment.

**Mobility:** The ability to move unimpeded, safely, and efficiently using a reliable transportation system.

**Modernization:** Improvements related to upgrading system safety, functionality, and overall operational efficiency, without adding major physical capacity.

**Multimodal:** The availability of multiple transportation options, especially within a system or corridor.

**Multiple Land Use:** Use of land for more than one purpose, for example, grazing of livestock, recreation and timber production. The term may also apply to the use of associated bodies of water for recreational purposes, fishing and water supply.

**National Ambient Air Quality Standards (NAAQS):** Federal standards that set allowable concentrations and exposure limits for various pollutants. The USEPA developed the standards in response to a requirement of the Clean Air Act of 1990. Air quality standards have been established for the following six criteria pollutants: ozone (or smog), carbon monoxide, particulate matter, nitrogen dioxide, lead, and sulfur dioxide.

**National Environmental Policy Act of 1969 (NEPA):** An act to establish a national policy for the environment, to provide for the establishment of a Council on Environmental Quality (CEQ) to administer NEPA, and to provide for other purposes. NEPA requires that any project using federal funding or requiring federal approval, including transportation projects, examine the effects of proposed and alternative choices on the environment before a federal decision is made. The NEPA process consists of a set of fundamental objectives that include interagency coordination and cooperation, and public participation in planning and project development decision-making. Environmental reviews involve an interdisciplinary and interagency process. This coordinated review process includes input from the public, as well as from other agencies, to guarantee that all environmental protections, as well as other issues are addressed.

**National Highway System (NHS):** The Interstate System as well as other roads important to the nation's economy, defense, and mobility; developed by the United States Department of Transportation in cooperation with the states, local officials, and metropolitan planning organizations.

**Natural Resources:** Natural assets (raw materials) occurring in nature that can be used for economic



production or consumption. See also renewable natural resources and non-renewable natural resources.

**No Control of Access:** Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways. No physical restrictions, i.e., a control of access fence, exist. Normally, private driveway connections are defined as one connection per parcel. Additional connections may be considered if they are justified and if such connections do not negatively impact traffic operations and public safety.

**Non-Attainment:** Any geographic area that has not met the requirements for clean air as set out by USEPA/federal legislation in the Clean Air Act of 1990 (that is their air quality is poor). This triggers a requirement of actions by the MPO or state that an analysis be performed on long-range plans and the TIP to show that these programs will improve their air quality. After being designated as “non-attainment” and improving their air quality to the required standards, the area becomes “maintenance” - it does not reverse to “attainment”.

**Non-Renewable Natural Resources:** Exhaustible natural resources such as mineral resources that cannot be regenerated after exploitation.

**North Carolina Certified Sites:** NCDOT Certified Sites program showcases premium property sites that have been pre-qualified by undergoing a stringent site package preparation process to ensure property is ready for development. Sites are approved by the North Carolina Certified Sites Steering Committee.

**North Carolina Intrastate System:** A 3,600 mile system of highways designated by the North Carolina General Assembly in 1989 to be improved to at least four lanes in order to encourage economic development and growth, and connect the population areas to outlying areas of the state.

**North Carolina Regional Economic Partnerships:** Counties of North Carolina are organized into seven regional partnerships for economic development. These regional partnerships enable regions to compete effectively for new investment and to devise effective economic development strategies based on regional opportunities and advantages.

**Notice of Intent (NOI):** An announcement to the public and to interested agencies that a project is being developed and that an EIS will be prepared. It briefly describes the study area, the proposed action, its proposed purpose and need, the agency’s proposed public scoping process, and identifies the agency contact person (name and address).

**Operations:** The day to day tasks associated with maintaining and constructing highways. Includes evaluating driveway permits, traffic signal installations, overseeing constructing projects, and patching potholes. The 14 NCDOT Highway Division Offices are the primary groups responsible for handling the daily operations.

**Partial Control of Access:** Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways. Private driveway connections are normally defined as a maximum of one connection per parcel. One connection is defined as one ingress and one egress point. The use of shared or consolidated connections is highly encouraged. Connections may be restricted or prohibited if alternate access is available through other adjacent public facilities. A control of access fence is placed along the entire length of the facility, except at intersections and driveways, and at a minimum of 1000 feet beyond the ramp terminals on the minor facility at interchanges (if possible).

**Permit:** Written permission given by a governmental agency with "permitting" authority to take certain action during specific steps of a project development process. Example: permits may include permission for any construction, excavation, depositing of material, or other work in navigable waters (USACE), permission required for the discharge of dredged or fill material into waters of the United States (USACE). A permit may also refer certain other clearances or certifications such as a clearance from the FAA for proposed highway construction in the vicinity of public use and military airports, and water quality certifications for the licensing of an action that would result in a discharge into regulated waters. These approvals, plus certain others relating to solid waste management, underground storage tanks, coastal zone areas, etc., involve approvals and documentation commonly referred to as permits.

**Preferred Alternative:** The recommended alternative put forth no later than the FEIS. A recommended Preferred Alternative can be identified in the DEIS.

**Preservation:** Activities that protect natural resources (natural resource context).

**Preservation:** Activities that protect the infrastructure and extend facility service life (Statewide Transportation Plan context).

**Public Hearing:** A meeting designed to afford the public the fullest opportunity to express opinions on a transportation project. A verbatim record (transcript) of the proceedings is made part of the project record.

**Public Involvement:** The process through which government communicates with its stakeholders using a series of products, tools, documents and outreach opportunities.

**Public Meeting:** An announced meeting conducted by the convening agency designed to facilitate participation in the decision-making process and to assist the public in gaining an informed view of a proposed project at any level. Can be referred to as a public information meeting or workshop.

**Purpose and Need Statement:** Establishes why the project is proposed and is the foundation to determine if alternatives meet the needs in the area. The Purpose and Need Statement is developed in consultation with local, state and federal agencies as well as the public. It is the first concurrence point of the 404/Merger process.

**Right of Way:** The land (usually a strip) acquired for or devoted to highway transportation purposes.

**Rural Planning Organization (RPO):** Planning entities for rural (non-MPO) areas of three to 15 counties (establishment is voluntary). Core roles include: 1) development and prioritization of transportation projects for input into the State Transportation Improvement Program (TIP); (2) coordination of local and regional multimodal transportation plans; (3) providing an information clearinghouse (information resource center); and, (4) providing a mechanism for meaningful public participation.

**Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU):** Congressional act authorizing federal surface transportation programs for highways, highway safety, and transit for the five-year period from 2005-2009.

**Scoping:** The process of establishing the principal issues to be addressed in an environmental impact assessment.

**Secondary and Cumulative Effects:** See Indirect and Cumulative Impacts.

**Service Road:** A public or private road, auxiliary to and normally located parallel to a controlled access facility or arterial that maintains local road continuity and provides access to parcels adjacent to the controlled access facility or arterial.

**Shared Access:** A single access connection serving two or more adjoining lots or parcels.

**Shoulder:** The portion of the roadway contiguous to the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of the roadway.

**Significant Impacts:** Any number of social, environmental, or economic effects or influences which may be brought about as a result of the implementation of a transportation improvement. Significant impacts may include effects, which are direct, secondary, or cumulative. The term significant is used and interpreted to determine which type of NEPA document is appropriate. Categorical exclusions are those actions that do not involve significant effects. Environmental Impact Statement projects in most cases can and do involve significant impacts.

**Stakeholder:** Individuals, communities, government agencies, private organizations, non-governmental organizations or others having a legitimate interest or "stake" in both the process and outcomes of a project.

**Statewide Transportation Plan:** Formally known as North Carolina's Long-Range Multimodal Transportation Plan, it is the state's plan which identifies and evaluates a full spectrum of future transportation needs and potential solutions by mode and by function. The overriding purpose of this Statewide Transportation Plan is to establish a long-range blueprint for transportation investment in North Carolina. The Statewide Transportation Plan also provides a balanced picture of the state's transportation challenges and opportunities based on anticipated resources, projected passenger and freight movement needs, and estimated improvement costs. The end result is a preferred North Carolina transportation investment strategy for the next 25 years.

**Stormwater Management (SWM):** Physical design features such as ponds or drainage swales which are incorporated into a highway project as measures to retain or direct stormwater run-off in a manner that controls discharge volumes and/or water quality, replicating the pre-construction drainage conditions.

**STRAHNET:** The Department of Defense's Strategic Highway Network for moving military personnel and equipment.

**Strategic Highway Corridors (SHC):** A set of primarily existing highway corridors that exemplify the long-term potential to serve passenger and freight movement in a high-speed manner. These facilities upon, some level of improvement, will substantially increase the mobility and connectivity of travel to destinations within and just outside North Carolina, while helping foster economic prosperity and promoting environmental stewardship. The Board of Transportation adopted the SHC concept as a part of the Statewide Transportation Plan in September 2004.

**Strip Development:** A form of commercial land use in which each establishment is afforded direct access to a major thoroughfare; generally associated with intensive use of signs to attract passers-by.

**Superfund:** The common name used for the trust fund or process established under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to clean up hazardous waste sites

across the country. Also used in the context of a cleanup site that has been placed on the National Priorities List (e.g. a Superfund site).

**Superstreet:** The common name for an intersection design on a divided highway in an urban area in which a right turn, followed by a u-turn, replaces a prohibited left turn or through movement. Motorists using the major highway have the ability to turn right and (usually) left onto the minor street. Motorists on the side street can only turn right onto the major highway, then must proceed to median crossover at least 800 feet downstream, make a u-turn on the major highway followed by a right onto the minor street to continue on “through” the intersection (if applicable). The intersections and median crossovers may be signalized. A similar design with directional crossovers, median u-turns, and no traffic signals is used in rural areas.

**Systems Planning Studies:** Studies that examine existing conditions and future deficiencies, leading to the creation of a transportation vision for an area typically 25-30 years in the future.

**Thoroughfare:** A facility with a functional purpose of moderate to low mobility and high access. The facility has no control of access, traffic signals, driveways with full movements, and a minimum of 2 travel lanes without a median. Connections are provided primarily at at-grade intersections.

**Tiered Environmental Impact Statement (Tiered EIS):** A procedure for completing the NEPA process in two separate stages, known as tiers. The first tier involves the preparation of an EIS that examines a large land area or a broad set of issues associated with a major federal action that triggers the NEPA process. The second tier generally involves the preparation of several separate NEPA documents, which could include Environmental Impact Statements, Environmental Assessments, or even Categorical Exclusions.

**Traditional Neighborhood Development (TND):** A compact, mixed-use neighborhood where residential, commercial, and civic buildings are within close proximity to each other. It is a planning concept that is based on traditional small town and city neighborhood development principles.

**Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21):** Congressional act authorizing federal surface transportation programs for highways, highway safety, and transit for the six-year period from 1998-2003.

**Transportation Improvement Program (TIP):** Federally-mandated, fiscally constrained schedule that prioritizes transportation projects and studies of regional or statewide significance that covers a minimum period of three years. (7 years in North Carolina.) A short-term, fiscally constrained program of multi-modal transportation projects for metropolitan areas. It documents the anticipated timing, cost, and rationale for transportation improvements to be made in the region. It translates recommendations from the long-range transportation plan into a short-term program of improvements. The MPO generally prepares and updates the TIP every year (but is only required to do so every 2 years) in cooperation with the state transportation and public transit operators. MPOs, federal transportation agencies, and the Governor must approve the program.

**Trauma Center:** A specialized hospital facility distinguished by the immediate availability of specialized surgeons, physician specialists, anesthesiologists, nurses, and resuscitation and life support equipment on a 24 hour basis to care for severely injured patients or those at risk for severe injury.

**Travel Demand:** A measure of transportation activity. Specifically for highways, the number of vehi-

cles desiring to use a particular facility.

**Travel Demand Management (TDM):** A system of actions whose purpose is to alleviate traffic problems through improved management of vehicle trip demand. These actions, which are primarily directed at commuter travel, are structured to either reduce the dependence on and use of single-occupant vehicles, or to alter the timing of travel to other, less congested time periods. Simply stated, the purpose of travel demand management is to maximize the movement of "people," not vehicles, within the transportation system.

**Truck Traffic Percentages:** The percentage of trucks of the total number vehicles using a highway.

**Urban Run-off:** Storm water from city streets and adjacent domestic or commercial properties that contains litter, and organic and bacterial wastes.

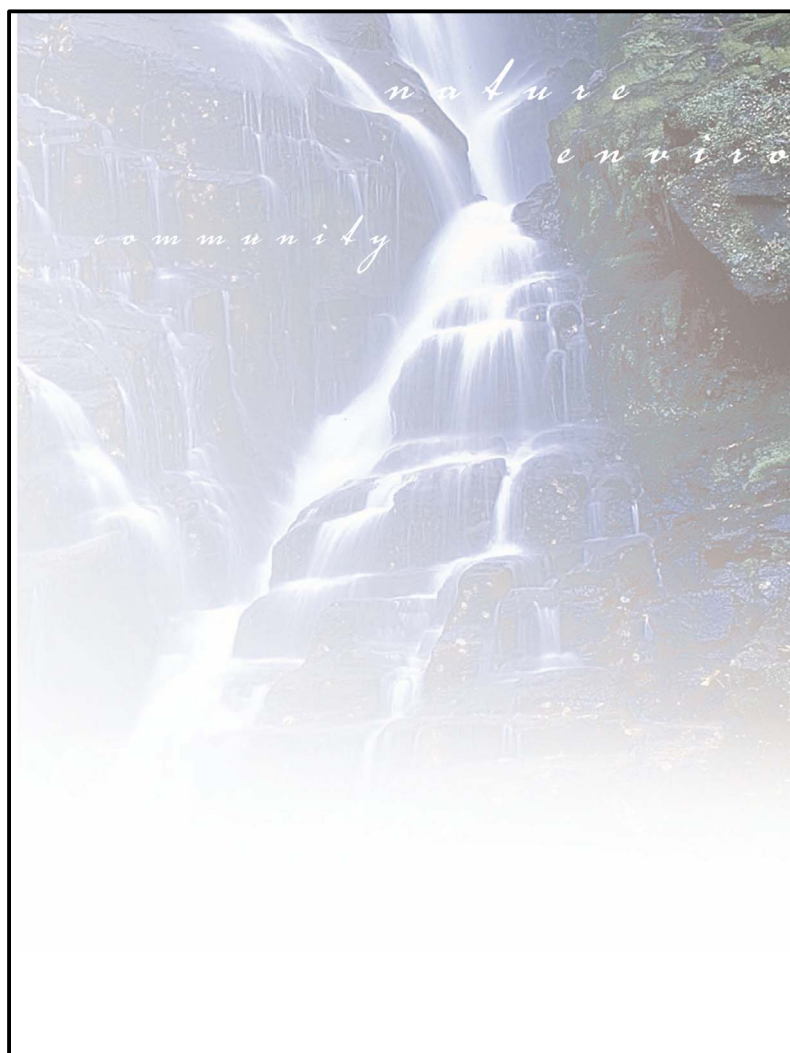
**Urban Sprawl:** Expansion of an urban area to accommodate its growing population.

**Vehicle Miles Traveled (VMT):** A measure of highway use; measures the total miles traveled by all vehicles in the area for a specified time period (one vehicle traveling one mile is one vehicle-mile).

**Wetlands:** Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

**Zoning:** Process in physical planning, or the results thereof, in which specific functions or uses are assigned to certain areas (for example, industrial zones, residential areas).





North Carolina Department of Transportation

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ENVIRONMENTAL  
*Stewardship*  
*Policy*


The mission of the North Carolina Department of Transportation is to provide an integrated transportation system that enhances the state's well being. Our goal is to provide a safe and well-maintained transportation system that meets the needs of our customers and supports the development of sustainable, vibrant communities. In so doing, we are committed to planning, designing, constructing, maintaining and managing an interconnected transportation system while striving to preserve and enhance our natural and cultural resources.


Environmental stewardship encompasses these responsibilities and is reflected in our day-to-day operations by:

- ♦ Safeguarding the public's health by conducting our business in an environmentally responsible manner
- ♦ Demonstrating our care for and commitment to the environment
- ♦ Recognizing that our customers expect us to provide mobility and a quality of life that includes the protection of the natural resources and the cultural and social values of their community.

Each employee is responsible for incorporating these principles of safety, environmental stewardship and customer focus into their daily activities.

Approved by the Board of Transportation on February 7, 2002.

  
Chairman of the Board

  
Secretary of Transportation

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## Appendix B - Regional Forums and Comments

### What was the Purpose of the Forums and Where were they Held?

Between November 2003 and January 2004, NCDOT staff held a series of public meetings (regional forums) throughout North Carolina to share the SHC concept with stakeholders and gather their reactions in order to share input with management and the Board of Transportation. The three major objectives for the public forums were to:

- Educate stakeholders about the overall SHC concept.
- Gather stakeholders' reactions, ideas and critical issues about SHC concept.
- Educate stakeholders about next steps and timeframes in the planning process.

As part of this effort, NCDOT engaged NCDENR and NCDOC to partner and participate in the public involvement process. NCDOT contracted with the Triangle-based consulting firm AH HA! to help design and facilitate these forums.

Nine public forums were held throughout North Carolina (three in each of the geographic areas described below). The three geographic regions tended to share common concerns and are similar in physical and natural features. The forums were held in both urban and rural areas. This outreach approach was structured to ensure that both broad statewide and unique regional perspectives would be heard. The forums were held at community colleges, town halls, civic centers, and other popular meeting places. In choosing venues the NCDOT team sought ease of access and ample parking; audio/visual capabilities; good lighting and sufficient space. Each forum lasted two and a half hours and a variety of techniques were used to publicize these forums, including email, brochures, and announcements via newsletters and listserves.

#### West

- Bryson City - Nantahala Village, Mountain Resort & Meeting Center (November 18<sup>th</sup>, 2003)
- Wilkesboro - John H. Wilkes Community College (November 19<sup>th</sup>, 2003)
- Asheville - NC Arboretum (November 20<sup>th</sup>, 2003)

#### East

- Jacksonville - Commons Recreation Center (December 9<sup>th</sup>, 2003)
- Wilson - Wilson Tech Community College (December 10<sup>th</sup>, 2003)
- Williamston - Bob Martin Agricultural Center (January 22<sup>nd</sup>, 2004)

#### Central

- Huntersville - Town Hall (January 13<sup>th</sup>, 2004)
- Southern Pines - Douglass Community Center (January 14<sup>th</sup>, 2004)
- Greensboro - Guilford Tech Community College (January 15<sup>th</sup>, 2004)

These forums also supplemented the work done by Board of Transportation members to inform citizens of this new planning concept. One Board member in particular, Cam McRae, was instrumental in responding to numerous requests and making presentations to interested citizens in eastern North Carolina. Board Member McRae was proactive in helping to shape the early development of the corridor concept and has championed its importance to the public at-large.

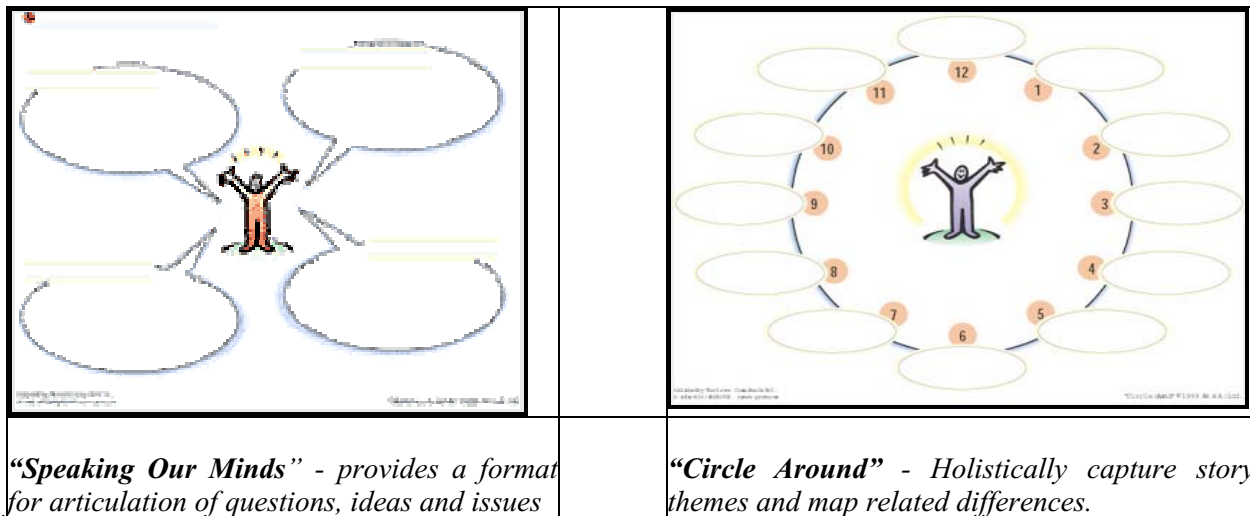
Since the SHC concept represents a new planning direction, NCDOT initially chose to engage those stakeholders who have a vested interest in the conceptual planning aspects of Strategic Highway Corridors (versus those with an interest in project specific details). Targeted stakeholders included local, state and federal agencies, economic development and environmental organizations, freight industry representatives, regional and local planning agencies, political leadership organizations, and other advocacy groups. Approximately 250 people attended the forums, with an average of 25-28 people attending per forum.

## How were the Forums Structured?

The public forums were designed to promote open, honest exchange between NCDOT and the participants. At the same time they were tightly structured so that all parties could move forward productively. Each room was pre-arranged with roundtables of 6-8 people per table in order to promote a conversational tone. Each table had table sized graphic templates (see next page) taped on it, along with sticky notes and pens for participants. NCDOT also prepared handouts (see next page) on the SHC concept as a takeaway for participants. The forum agenda, outcomes, roles and rules were displayed prominently on wall-sized templates.

Visual frameworks such as graphics templates were used to capture and organize participants' ideas, questions and issues at the forums. When graphics templates are used, people become engaged in the process of sharing, listening, and building upon each other's ideas. As this happened, participants began to see (in the most literal sense) the big picture, and connections emerged. All participants had an opportunity to give individual input through the use of sticky notes that they placed on table graphic templates. AH HA! captured comments made during the full group conversations on wall-sized templates. These templates also aided in organizing the data collected at each of the sessions.

## Examples of the Graphic Templates used during the Public Forums



## Handouts Provided at the Public Forums

**STRATEGIC HIGHWAY CORRIDORS**

**Purpose**

- Enhance the Movement of People and Goods on Highways within Regions & across the State
- Foster Economic Prosperity, help NC stay Competitive in a Global Economy
- Maximize the Use of Existing Highway Corridors
- Minimize Impact to Surrounding Environment

**Goals**

Create an up front Planning Vision for each Highway Corridor that **Affects Decision Making**

- Funding Decisions
- Project Planning Decisions
- Design Decisions
- Day to Day Decisions (Access/Driveway Permits)
- Local Land Use Decisions

**Selection Criteria**


- Mobility:** The Corridor has Significant Traffic Volumes and is Vital to the State's and/or Region's Interest
- Connectivity:** The Corridor provides a Connection between Activity Centers
- Interstate Connectivity:** The Corridor provides a Connection between Existing and/or Planned Interstates
- Interstate Reliever:** The Corridor Currently Serves or has Potential to Serve as a Reliever Route to an Existing Interstate Facility
- Other Factors:** Hurricane Evacuation Route; Prominent Report Addresses the Need for Improvement; or the Corridor is part of a National, Economic, or Military Highway System

**What Can You Do**

- Communicate Importance of Good Access Management and Land Use Coordination
- Protect Corridors to Maintain High Quality of Service
- Consider Strategic Corridors in Planning Process (Local Transportation Plans)
- Promote Land Use Planning that Supports the Strategic Corridors Concept


**Strategic Corridors in a Nutshell:**  
“A set of Existing Highways Vital to Moving People and Goods within and just outside North Carolina”

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**SUMMARY SHEET**

SELECTION CRITERIA for STRATEGIC HIGHWAY CORRIDORS		
Criteria	Statewide Strategic Corridors	Regional Strategic Corridors
<b>Mobility</b>	Facilities of Statewide Interest High Traffic Volumes; High Truck % Serves Long-Distance Travel	Facilities of Regional Significance Serves Regional Destinations & Commuter Traffic
<b>Connectivity</b>	Connects an Existing <b>Major Activity Center</b> to another <b>Major Activity Center</b> , Seaport, Major Airport, or Major Military Base	Connects an Existing <b>Major or Regional Activity Center</b> to another <b>Major or Regional Activity Center</b> , Seaport, Major Airport, or Major Military Base
<b>Interstate Connectivity</b>	Connects an Existing Interstate facility to another Existing or Planned Interstate facility	Connects an Existing Interstate facility to another Existing or Planned Interstate facility
<b>Interstate Reliever</b>	Currently Serves or has Potential to Serve as a Reliever Route to an Existing Interstate Facility	Currently Serves or has Potential to Serve as a Reliever Route to an Existing Interstate Facility
<b>Definitions</b> >Major Activity Center: Urban Area (City) having a Population of 50,000 or more >Regional Activity Center: Urban Area having a Population between 20,000 and 50,000  <b>Other Factors</b> >Corridor is designated as a Hurricane Evacuation Route >Corridor is cited in a Prominent NC Report >Corridor is part of a National, Congressional, Statewide, Economic, or Military Highway System		



## What was the Format of the Forums?

Each forum was 2½ hours. Eight of the nine forums were held during the morning hours. Agenda included:



1. **Welcome and Overview.** (15 minutes) AH HA! began the meeting by welcoming participants and explaining that they were an independent consulting company who was invited by NCDOT to facilitate the forum. NCDOT staff then introduced the overall SHC concept and reviewed the three objectives for the meeting. AH HA! then reviewed the agenda and ground rules for the session and invited participants to introduce themselves.

**Comments.** The Welcome and Overview was designed to strike a friendly tone of “we are all here to have a conversation - but one that is structured.” There was a wall-sized meeting agenda, including outcomes, roles and rules. The roles stated that AH HA! was to facilitate; NCDOT staff was to share information and respond to questions; and participants were to participate. The rules were to listen, be open and honest, actively participate and build on each other’s ideas.

2. **The Ideal Highway System.** (20 minutes) Participants introduced themselves to each other at their tables and shared their perspectives about what elements or components make up ‘The Ideal Highway System’. After each table had an opportunity for discussion, AH HA! asked the full group to share their perspectives on this topic. AH HA! captured these on a wall-sized ‘Circle Around’ graphic template.

**Comments.** This exercise gave participants the opportunity to articulate what’s important to them when it comes to the highway system. It brought out their needs and concerns and engaged them in the discussion and set the stage for NCDOT staff to explain how the SHC concept fit into the context of an ideal highway system. It also allowed participants who had specific frustrations toward NCDOT or transportation projects to express those and see that they were captured on the wall template, allowing them to move forward.

3. **About Strategic Highway Corridors.** (45 minutes)

**Part I - NCDOT Presentation.** NCDOT explained the overall purpose and goals of the SHC concept using a PowerPoint presentation. The presentation focused on why the concept is important and how they might help to address some of the wishes and concerns that were expressed by the group in the previous activity. The presentation also included examples of corridors, what they look like, and an overview of the selection criteria.

**Comments.** This segment helped move the participants from understanding the common elements that make up an ideal highway system to understanding a key NCDOT strategy to meet this goal – the SHC concept.

**Part II - Facilitated Discussion.** After the presentation participants were asked to write their responses to the presentation and place them on their tabletop template using these four frameworks:

- Benefits: “What I like...”, “What this will do for me/us...”
- Challenges: Doubts, Concerns, Critical Issues
- Big Ideas: Ideas to build on the benefits or overcome the challenges
- Questions: Questions about the SHC concept or implementation plan

Each table then discussed their responses and common themes for each focus area were placed on the wall-sized template. This served as a starting point for the full group conversation with NCDOT staff. NCDOT staff frequently asked for clarification as questions and comments were shared in order to address the specific issue and avoid misinterpretation.

**Comments.** This segment of the forums helped participants to internalize and react to the goals and strategies of the corridors concept and helped NCDOT to continue to identify common themes and critical issues.

4. **Selection Criteria.** (30 minutes) NCDOT staff then presented the selection criteria and maps for the proposed Strategic Highway Corridors through PowerPoint. After the presentation large foam-board maps highlighting the Strategic Highway Corridors were displayed. Participants were then asked to give their reactions as follows:

- “What works is...”
- “What doesn’t work...”
- “Questions...”

Participants wrote their reactions on sticky notes and placed them directly on the NCDOT maps. As participants stood by the maps, one person from each group shared the responses with the full group.

**Comments.** The process of placing sticky notes directly on the maps gave participants a direct connection and helped to build additional buy-in for the public involvement process.

5. **Wrap Up.** (10 minutes) As a wrap-up to the formal portion of the session, NCDOT staff reviewed the key points about the SHC concept and explained how they will work with the information from all the forums to develop recommendations to the Board of Transportation. NCDOT staff also gave several ideas on what participants could do as a follow up to the meeting.

**Comments.** NCDOT placed an emphasis on how the Department is going to work together with stakeholders and partner with them as they move forward.

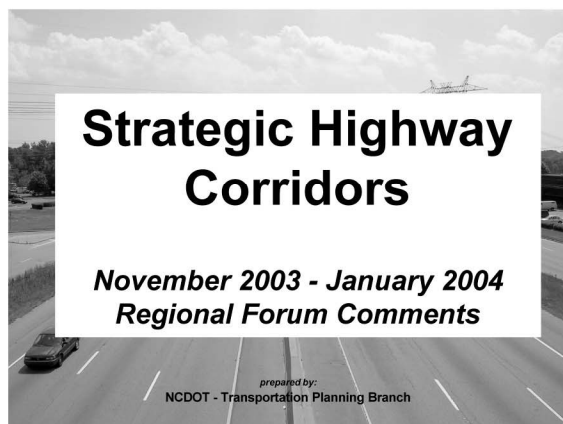
6. **Open Discussion (including Regional Planning Initiatives).** (30 minutes) After the formal program ended, participants were invited to stay and ask specific questions or share ideas with NCDOT staff.

**Comments.** In the three Eastern Region meetings, BOT member Cam McRae led a discussion on an Eastern North Carolina Regional Transportation Plan. Note: This Plan became integrated with the Strategic Highway Corridors Vision Plan.

**Team Debrief.** After each forum, NCDOT staff held a post session debrief in order to capture feedback, common themes, and critical issues from each meeting. This post-session analysis was compiled and sent to all Forum participants on February 19, 2004. These comments can be found on the following pages.

## What Activity occurred Following the Forums?

Following the public forums, AH HA! led the NCDOT team through a one-day knowledge sharing and action planning session. This session was designed to build team alignment around knowledge gained from the public involvement sessions and make decisions about implications for the state planning process. The AH HA! team assisted NCDOT staff in developing a format to share their findings and helped outline a series of action items to advance the concept and report the overall effort within the NCDOT organization and to other partner agencies.



### Bryson City - Nov. 18, 2003

#### Benefits

- ➔ Safety & mobility & freeway standards for Statewide Corridors is a good thing
- ➔ Overall concept is environmentally friendly

#### Challenges

- ➔ Further clarification of how concept influences project funding & if it negatively impacts existing projects
- ➔ Stronger consideration needed for rural areas--to meet rural area needs and for equal benefit (as compared to urban areas)
- ➔ Find ways to show connectivity to other states without committing another state to a road improvement

### Bryson City - Nov. 18, 2003

#### Challenges con't

- ➔ Southwest NC is more economically tied to neighboring states vs. NC-- targeted Corridor improvement must enhance this situation
- ➔ Geographic designations as illustrated on the maps need further delineation
  - ➔ Southwest NC offers unique destination and services apart from other Mtn communities--maps should recognize this, depicting this area as a region unto itself OR simply rethink how "regions" are grouped

### Bryson City - Nov. 18, 2003

#### Big Ideas

- ➔ Take Appalachian Development Corridor funds & other discretionary money out of the equity formula
- ➔ Revise definition of "Regional Activity Center"
  - ➔ Consider Cherokee, Sylva, Community colleges as activity centers too
  - ➔ Dillsboro, Cullowee, Sylva collectively act as a regional activity center

#### Questions

- ➔ Can other modes utilize Strategic Corridors for mobility?

### Bryson City - Nov. 18, 2003

#### Comments from Maps

- ➔ US 74 West of Waynesville provides quality service
- ➔ Consider NC 60 as strategic to this region (Murphy to Atlanta connection)
- ➔ Be conscious of environmental challenges for any future widening of US 64 (Franklin to Rosman)
- ➔ Complete needed improvements to all of US 74 - referred to as Corridor "K"
- ➔ Recognize some of the shorter, critical connections--improvements to US 25 b/w I-26 and South Carolina line

### Wilkesboro - Nov. 19, 2003

#### Benefits

- ➔ Concept promotes greater intergovernmental coordination
- ➔ Concept promotes safety and connectivity across the state

#### Challenges

- ➔ Emphasize connectivity & coordination to other states
  - ➔ Western NC citizens more apt to utilize Knoxville or Johnson City airports
  - ➔ Neighbors should be considering similar improvements on their side
- ➔ Boone/Wilkesboro area is isolated--US 421 provides only "pipeline" to rest of NC and world

### Wilkesboro - Nov. 19, 2003

#### Challenges con't

- ➔ This concept may promote people to drive more thus further degrading the state's air quality
- ➔ Funding for future improvements and cost of construction will be tough to overcome
- ➔ Equity formula - understanding it and ensuring its fairness to majority of NC
- ➔ Acquiring local input (priorities vary from community to community)
- ➔ Tourist traffic different from day-to-day traffic
- ➔ Continue to preserve the environment, minimize local impacts

### Wilkesboro - Nov. 19, 2003

#### Challenges con't

- ➔ Poor planning/coordination and slow delivery time (like 15 years) means once a project is finally built it becomes obsolete

### Wilkesboro - Nov. 19, 2003

#### Big Ideas

- ➔ Consider "fast tracking" projects in rapidly growing areas
- ➔ Consider multimodal design standards to accommodate other modes--buses, bicyclists, and movement of freight
- ➔ Provide local officials/planners incentives to do land-use planning that supports the Strategic Corridors w/o legislative authority
- ➔ Revise definition of "regional activity center" - use a different measure with help of Commerce or other State/Fed agency

### Wilkesboro - Nov. 19, 2003

#### Questions

- ➔ How does this concept get implemented? What is its lifespan?
- ➔ How does the Highway Trust Fund work-- how are funds dispersed, and why are certain facilities earmarked already?
- ➔ Will there be standard designs associated with all Strategic Corridors OR will standards be more site specific?
- ➔ How do we ensure fair equity--equal representation for all areas?
- ➔ Is a similar effort being consider for passenger Rail--ex. Wilmington to Asheville?
- ➔ Why not upgrade an existing road w/ a focus on alternate designs--ex. jughandles, superstreet ideas)

### Wilkesboro - Nov. 19, 2003

#### Questions con't

- ➔ How do we ensure other facilities outside of those identified as Strategic will also be improved over time?
  - ➔ Should they be recognized as a separate layer?
- ➔ Why does planning/construction take so long?

### Wilkesboro - Nov. 19, 2003

#### Comments from Maps

- ➔ Consider segments of NC 18 and NC 16 as strategic to this region as you restudy the regional activity center definition
- ➔ Consider/study other regionally significant facilities--US 21 from I-77 to Sparta
- ➔ Improve/Enhance travel b/w Boone and Asheville
- ➔ Consider/evaluate portions of NC 268, US 601, US 321 as regionally significant
- ➔ Improve overall regional connectivity in NW North Carolina



### Asheville - Nov. 20, 2003

#### Benefits

- ➔ Concept promotes better human and natural environment stewardship
- ➔ This type of planning avoids traditional "piece-meal" approach
- ➔ Concept will save time--project process is streamlined
- ➔ Focuses the state on improving & maximizing use of existing infrastructure rather than on new development
- ➔ Will help to reduce sprawl and congestion; possibly a way to handle future growth

### Asheville - Nov. 20, 2003

#### Challenges

- ➔ Funding, funding, funding
- ➔ Eliminate competition b/w regions for funding improvements
- ➔ Hectic pace of life means personal vehicles continue to be the best option, bike/ped options are considered less and less
- ➔ Politics should not interfere with an area's needs and safety & the "power" of any one region should not affect transportation priorities
- ➔ More new highways in Western NC creates negative impact to wildlife communities--fragmentation & population reduction
- ➔ Some environmental views are too extreme; highway planning and construction needs to happen now

### Asheville - Nov. 20, 2003

#### Challenges con't

- ➔ A more transparent & simple planning process is needed
- ➔ NCDOT's compliance with the law
- ➔ Overall time it takes to delivery projects
- ➔ Equity issue--we need to ensure everyone has a Strategic Corridor through their area
- ➔ Maintenance of highways in NC is underfunded
- ➔ Highways need to be built for citizen safety, not just for moving trucks and goods

### Asheville - Nov. 20, 2003

#### Big Ideas

- ➔ Restructure DOT Board to include more technical expertise
- ➔ Consider similar statewide network for Passenger Rail
  - ➔ Create a line for direct rail service b/w Asheville, Greensboro & Raleigh
- ➔ Broaden overall planning focus so that it's a truly multi-modal statewide vision/plan
  - ➔ Focus on a total, comprehensive planning process; not just on how to "move traffic"

### Asheville - Nov. 20, 2003

#### Big Ideas con't

- ➔ Provide incentives for car-pooling vs. continued use of the single-occupancy vehicle
- ➔ Study possibility of returning to county-run transportation systems
- ➔ Construction of new roads should serve sustainability or not be built at all
- ➔ Encourage transit, bike use first before personal vehicle use
- ➔ Employ wiser planning to preserve surrounding agricultural and urban resources

### Asheville - Nov. 20, 2003

#### Questions

- ➔ Have other forms of transportation been incorporated in this planning concept to form a more holistic approach?
- ➔ Why can't we introduce a more multi-modal planning emphasis statewide?
- ➔ Since it takes so long to implement the transportation improvement, what about if a community's goals change?
- ➔ How does all of this relate to Economic Development?
- ➔ What is the policy for highways if sprawl and adding lanes become major economic issues?
- ➔ How do you preserve the character of the agricultural land use surrounding a Strategic Corridor?



### Asheville - Nov. 20, 2003

#### Questions con't

- ➔ How will this approach reduce the overall time in the planning process?
- ➔ Why have the obvious, blatant needs in this area been ignored for 15 years?
- ➔ Why is US 70 not a Statewide Strategic Corridor all across NC?
- ➔ How will this approach affect the rural communities/centers not meeting the minimum population threshold?
- ➔ Will local control of a Strategic Corridor cause problems?
- ➔ Funding -- where does it come from, how do we get more?

### Asheville - Nov. 20, 2003

#### Comments from Maps

- ➔ Be conscience of Western NC's new national heritage designation (and cultural heritage too)
- ➔ Address the issue of connectivity/coordination with neighboring states
- ➔ Consider base closings or potential economic changes that affect Criteria/Corridor development
- ➔ Create wildlife crossings over major highways
- ➔ Consider regional bus system for Buncombe County area
- ➔ US 25 south of Asheville is a critical connection; surrounding area is growing rapidly

### Asheville - Nov. 20, 2003

#### Comments from Maps con't

- ➔ Improve corridor(s) between Asheville and Boone
- ➔ Consider/study Newfound Rd/NC 63 as a regionally significant route
- ➔ Henderson to Brevard corridor can be planned as a true multi-modal connection via US 64
- ➔ Western NC's transportation dollars should not be spent in Eastern NC--there seems to be an inequity in terms of spending--Buncombe County area is in immediate need of better highways/roads

### Jacksonville - Dec. 9, 2003

#### Benefits

- ➔ Promotes Economic Development
- ➔ Improves safety; higher mobility & traffic flow; better access and connections to places
- ➔ Maximizes existing resources and infrastructure--saving time and money
- ➔ Addresses Maintenance -- can improve how impacts to environment & businesses & communities are addressed
- ➔ Looks at big picture; a more meaningful way to plan--looks at entire system as a whole
- ➔ Reduction of secondary and cumulative impacts
- ➔ Separates facilities based on different needs & roles

### Jacksonville - Dec. 9, 2003

#### Challenges

- ➔ Acquiring environmental permits; influence of politics and money
- ➔ Convincing the public of this direction
- ➔ Many poorly maintained roads in NC
- ➔ Working with small towns--create more bypasses OR go through towns--what do you do with a Strategic Corridor?
- ➔ Getting various regions and/or communities to work together
- ➔ Balancing mobility with access

### Jacksonville - Dec. 9, 2003

#### Challenges con't

- ➔ Equity or allocation of funds is not fair
- ➔ Creating long range plans vs. providing near term action
- ➔ Flooding in Eastern NC--how to better deal w/ natural disasters
- ➔ Challenge of retrofitting existing facilities--don't underestimate this
- ➔ Wetland mitigation taking land off taxes roles

### Jacksonville - Dec. 9, 2003

#### Big Ideas

- ➔ Build more Toll Facilities--study existing and new roads
- ➔ Further streamline the permitting process
- ➔ Hire PR firms to sway public opinion and reduce environmental opposition
- ➔ Separate cars and trucks on major statewide and interstate facilities
- ➔ Stop diverting transportation dollars to other uses
- ➔ Discourage strip development and encourage better zoning

### Jacksonville - Dec. 9, 2003

#### Big Ideas con't

- ➔ Provide connection to parallel rail facility for freight movement
- ➔ Use the US Military as a revenue source for new roads
- ➔ Don't allow access on these facilities within city limits
- ➔ Create more frontage roads

### Jacksonville - Dec. 9, 2003

#### Questions

- ➔ How will we coordinate w/ neighboring states--esp. South Carolina?
- ➔ How is the DOT doing with Interagency coordination?
- ➔ What really is a Strategic Corridor?
- ➔ How will projects be prioritized? Where will the money come from?
- ➔ Where is the stewardship of public dollars?
- ➔ What is the role of the local transportation plan? Esp. local land use?

### Jacksonville - Dec. 9, 2003

#### Questions con't

- ➔ How are we going to facilitate this "Corridor-wide visioning?"
- ➔ What is the timeframe on the projects east of I-95? What does DOT plan to do to help Eastern NC and make us an equal part of the state?
- ➔ How will Strategic Corridors fit in with other transportation projects and other transportation modes?
- ➔ How will we address the balance of urban vs rural needs?
- ➔ What does Strategic Corridors mean to the everyday commuter? How is this effort different from other corridor studies in the past?

### Jacksonville - Dec. 9, 2003

#### Questions con't

- ➔ Why only a focus on existing roads? Can we modify more?
- ➔ Will this be more inflexible than the existing process?
- ➔ How will NCDOT work with communities to protect these corridors at a local level?
- ➔ Does the Strategic Corridor Plan really promote the ONE NC concept?

### Jacksonville - Dec. 9, 2003

#### Comments from Maps

- ➔ Difficult to differentiate b/w existing x-section & proposed
- ➔ Construct another means of ingress-egress to the Ports
- ➔ All Strategic Corridors need to be 4-lanes & limited access
- ➔ Limited hwy connections east-west; limited improvements north-south
- ➔ Inclement weather & sensitive ecology--these should be part of the Criteria
- ➔ Consider enhancements/aesthetics as you plan for these corridors
- ➔ Corridor Plan needs to be tied to resources

### Jacksonville - Dec. 9, 2003

#### Comments from Maps con't

- ➔ Consider historic resources & cultural heritage & tourism as Criteria
- ➔ Concerned that CBDs of small towns will be bypassed Strategic Corridor Connectors only seem to be shown in large urban areas
- ➔ Unclear about map legend/color scheme--what is the connection b/w current roads and those ID'd as a blue road--what specific improvements are you talking about?
- ➔ Provide better connections to Outer Banks & coastal inlands
- ➔ There are not enough Interstate quality roads in NC
- ➔ Redefine regional activity center -- what happens if your RPO becomes an MPO -- does this affect decision-making?

### Jacksonville - Dec. 9, 2003

#### Comments from Maps con't

- ➔ Better coordination with other state's plans
- ➔ Improve links b/w bases & corridors--military mobilization to the corridors should be important
- ➔ Provide good access to the Ports
- ➔ How are improvements to the Global TransPark going to be made?---consider clearly showing Crescent Rd on the Map
- ➔ US 258--improve from Kinston to Jacksonville for better movement of military
- ➔ US 17 should be a "continuous corridor", i.e, make it full control of access throughout NC
- ➔ US 17 should be an Interstate quality road NOW

### Jacksonville - Dec. 9, 2003

#### Comments from Maps con't:

- ➔ US 74 needs to be an Interstate-quality road b/w Charlotte & Wilmington
- ➔ Work w/ South Carolina to complete I-20 from Wilmington to Florence
- ➔ Accelerate the completion of Wilmington outer loop and include the Southern Bridge

### Wilson - Dec. 10, 2003

#### Benefits

- ➔ Safety, mobility and connectivity throughout the state
- ➔ Directs funding to most needed areas
- ➔ Hopefully it will reduce costs in the overall planning/project/design timetable
- ➔ Promotes Econ. benefits and spurs development
- ➔ Reduces stress, increases safety
- ➔ Creates a greater sense of organization for the statewide network; maximizes use of existing facilities
- ➔ Helps provide a vision/long range thinking
- ➔ Higher level of environmental stewardship

### Wilson - Dec. 10, 2003

#### Benefits

- ➔ Effortless transportation
- ➔ Hopefully not repeating past mistakes
- ➔ Consistency throughout the system

### Wilson - Dec. 10, 2003

#### Challenges

- ➔ Funding & equity; prioritization of projects in an equitable manner
- ➔ Consider unique regional needs within a statewide plan--some areas of the state have expansion needs while others just need to maintain the "great" infrastructure that they already have
- ➔ Getting from point A to B quickly and safely
- ➔ Cost to create interstate quality roads
- ➔ Meshing/further streamlining of federal and state laws and regulations



### Wilson - Dec. 10, 2003

#### Challenges con't

- ➔ Strategic Corridors should cover all areas of the state--ensure equity, all counties should benefit
- ➔ Decades of inertia towards new location construction yet not all expansion needs have been met
- ➔ Lack of transportation infrastructure in the East
- ➔ Obtaining property and tracts of land to make the corridor a reality
- ➔ Convincing towns and regions to see the long-term benefits of not allowing new development to choke the existing highway system
- ➔ Potential to mitigate indirect and cumulative impacts

### Wilson - Dec. 10, 2003

#### Challenges con't

- ➔ Highways should serve people & not just vehicles--need for more "humane" highways
- ➔ Does this concept further induce demand?
- ➔ Maintain the character of the communities while still keeping continuity--includes economic, environmental and social justice
- ➔ Permitting--utilizing this approach in tandem with the merger process should help, but we must consider protection of the natural and human environment
- ➔ Competition b/w regions in the state

### Wilson - Dec. 10, 2003

#### Challenges con't

- ➔ Amount of wetlands down east create more problems than the Piedmont; greater environmental challenges
- ➔ NIMBY & NANW--must deal with this mindset

### Wilson - Dec. 10, 2003

#### Big Ideas

- ➔ Create a corridor identified as the "technology corridor" - maybe b/w Eastern and Central part of the state
- ➔ Military presence provides an opportunity for financing future transportation improvements; military should also be involved in decision-making (greater role)
- ➔ Reserve ROW for Corridor improvements TODAY
- ➔ Rocky Mount should be considered for a beltway as on the large cities in NC
- ➔ Name a corridor after the closest or most significant town or municipality
- ➔ Work in greater partnership w/ the regional bus. community

### Wilson - Dec. 10, 2003

#### Big Ideas con't

- ➔ Put the plan in place immediately
- ➔ Designate a DOT advocate that is truly identified with Eastern NC
- ➔ Stop transferring money out of the Trust Fund
- ➔ Re-write the Trust Fund, make the corridors eligible for funding
- ➔ Toll Roads are an alternate source of revenue (strong opinions both for and against)
- ➔ Get more federal funding
- ➔ Consolidate federal and state regulatory agency concerns

### Wilson - Dec. 10, 2003

#### Big Ideas con't

- ➔ Make sure the projects improvements fit within the existing ROW to save time and money
- ➔ More shared decision-making and funding
- ➔ Create on going feedback/communication with the public--before, during and after projects
- ➔ Design themes, create a "brand" to sell this concept and/or individual corridors
- ➔ Lay out clear steps as how to work through a corridor plan, concrete goals and timeframes
- ➔ Major airport needed around Greenville-Farmville area--could spur econ. development, offers alternate option for travel

### Wilson - Dec. 10, 2003

#### Questions

- ➔ How do we fund all of this?
- ➔ How are we going to implement everything?
- ➔ How will we prioritize these corridors?
- ➔ How do we address differences b/w regional, rural and under-served areas? A question of fairness and equity
- ➔ How do we keep the decision-makers on the same page over an extended period of time--esp. in light of changing situations; create more consistent decision-making
- ➔ How will we ensure Strategic Corridors is a long term commitment & not simply the next "flavor of the month?"
- ➔ When do we reevaluate this concept based on growth in the state? How often will this concept be reviewed?

### Wilson - Dec. 10, 2003

#### Questions con't

- ➔ Who makes final decisions on determining corridor selection as well as what improvements will be made?
- ➔ What input do surrounding areas have in planning for these corridors?
- ➔ What are the implications for Strategic Corridors & NCMIN and vice-versa?

### Wilson - Dec. 10, 2003

#### Comments from Maps

- ➔ Build all corridors to full control of access improvements--regardless of statewide or regional designation
- ➔ Map is misleading--color code the quality of roads, not all blue roads are equal---directed at the fact that there is a perception that the roads in the western part of the state are "better" as far as mobility goes
- ➔ Stay committed to connecting and preserving our military bases

### Wilson - Dec. 10, 2003

#### Comments from Maps con't

- ➔ US 17 to US 64 across the Albemarle--new connection needed b/w Elizabeth City & US 64
- ➔ Make US 264 a "Statewide" Corridor b/w Raleigh and Greenville
  - ➔ Improve US 264 b/w Greenville and Washington
- ➔ US 70 b/w East End Connector & I-540 should be blue line
- ➔ NC 147, b/w I-40 and I-540 should be recognized
- ➔ Need a better "Cary to Fayetteville route" via US 401
- ➔ Make NC 11 a "Statewide" corridor
- ➔ US 301 needs to figure in planning as I-95 alternate (from South Carolina to Virginia)

### Huntersville - Jan. 13, 2004

#### Benefits

- ➔ Econ development--both locally & regionally
- ➔ Smarter decisions for the long-term, consistent & integrated solutions
- ➔ Promotes better use of existing facilities
- ➔ Make travel to services easier and quicker
- ➔ Focuses on DOT's scarce resources
- ➔ Hopefully will reduce air pollution over time
- ➔ Ability to move large volumes of traffic efficiently
- ➔ Disperses traffic vs. concentrating traffic

### Huntersville - Jan. 13, 2004

#### Benefits con't

- ➔ Continuity in cross-sections
- ➔ Improves safety; improves mobility
- ➔ Good to have a proactive plan
- ➔ Introduces greater predictability related to land use



### **Huntersville - Jan. 13, 2004**

#### Challenges

- ➔ Avoid "under design"
- ➔ Implementation--how will politics hinder or assist the outcomes?
- ➔ Regional land use planning would be very important--don't get into the same shape we are in now
- ➔ Forcing local municipalities to use local funds for state road projects
- ➔ Decision-makers are out of touch--Ex. NC 73--local community wants turn lanes or better design improvements for high school or other land use and DOT only looks at a map and traffic & doesn't consider local input--decisions made in Raleigh, not Huntersville

### **Huntersville - Jan. 13, 2004**

#### Challenges con't

- ➔ Local gov't needs to understand impact of limiting access & truly buy-in to concept
- ➔ Impact to consumers--DOT always uses scientific projections when they decide how to improve roads; don't forget the human element
- ➔ Adequate funding
- ➔ Air Quality attainment may emerge as a controlling factor
- ➔ Land use vision is for local gov'ts to implement -- historical tension b/w Land Use and Transportation must be resolved at a policy level

### **Huntersville - Jan. 13, 2004**

#### Challenges con't

- ➔ Non-uniform land use regulation
- ➔ Managing access in the future--how do you explain to citizens they don't have access anymore? What ways will communities buy into access management?
- ➔ State relinquishing control of highway design & r/ships to local communities & locals relinquish control of land use planning along corridors
- ➔ Maintaining a consistent cross-section along a route when you move from urban to rural areas
- ➔ Political pressure will screw it up

### **Huntersville - Jan. 13, 2004**

#### Challenges

- ➔ Local gov't and multi-jurisdictional agreement on priorities
- ➔ Demand management is largely ignored, it should not be
- ➔ Channel more funding to rapidly growing population centers
- ➔ Financial appropriation slow in coming
- ➔ Better design decisions
- ➔ Public awareness--property ownership issues

### **Huntersville - Jan. 13, 2004**

#### Big Ideas

- ➔ Encourage multi-modal options--more modes to consider within these corridor studies
- ➔ Use ITS in corridor planning--ramp metering and HOV lanes
- ➔ Turn more control of funding to local and county entities
- ➔ Revamp the Highway Trust Fund to ensure fast growing counties are not short-changed
- ➔ Improve Aesthetics--constant grass cutting; reduce litter
- ➔ Strong(er) Access management policy at DOT
- ➔ Involve local planning dept and boards to establish greater protective measures; precede this by legislation

### **Huntersville - Jan. 13, 2004**

#### Big Ideas con't

- ➔ Devise a larger regional plan
- ➔ Remove political influence, leave it in the hands of professionals
- ➔ Increase NC's gasoline taxes
- ➔ Interpretation narrows corridors to one highway
- ➔ Implement tolls for through movement
- ➔ Expand concept of "Strategic Corridors" to "Strategic Transportation"
- ➔ Corridor task force is to bind land use agreements
- ➔ Shed weight--reduce commitment to unrealistic goals

### Huntersville - Jan. 13, 2004

#### Questions

- ➔ Local gov't buy in and role for local gov't?
- ➔ How will this process affect current projects local gov'ts are requesting?
- ➔ What is the decision-making process?
- ➔ What will public involvement be within a typical corridor study? And as this concept progresses?
- ➔ How will DOT implement this strategy?
- ➔ Will money be well spent?
- ➔ Who will be left out?
- ➔ What successes have other states had?

### Huntersville - Jan. 13, 2004

#### Questions con't

- ➔ Are there perhaps too many plans and too many initiatives?
- ➔ Will streamlining the process significantly decrease construction time?
- ➔ Is the emphasis on road capacity and moving vehicles?
- ➔ Why are there no shoulders on major routes?
- ➔ More info on how Corridors were chosen?
- ➔ What will be the affect of roads not identified as a Strategic Corridor?
- ➔ What is the r/ship b/w the Strategic Corridors and the Intrastate system?
- ➔ Is DOT looking at long range funding?

### Huntersville - Jan. 13, 2004

#### Comments From Maps

- ➔ Show destinations to corridors when they connect to other states
- ➔ Establish a maximum capacity (maximum number of lanes) for major highways
- ➔ How do proposed roads such as Garden parkway get reflected in the Strategic Corridor process?
- ➔ What is the consequence of breaking the state up into 3 regions?
- ➔ How is it possible that there is no high-speed travel b/w Charlotte and Eastern NC?

### Huntersville - Jan. 13, 2004

#### Comments from Maps

- ➔ NC 150 should be added as a regional corridor b/w Shelby and Lincolnton
- ➔ Direct corridor connection should be studied b/w Raleigh and Charlotte
- ➔ US 70 to Morganton - study as regional corridor
- ➔ US 601, Monroe northward is of regional significance
- ➔ US 70, Statesville/Hickory to Morganton--regionally significant
- ➔ Corridor needed from Asheville to Boone
- ➔ Corridor needed from Western NC to Atlanta

### Southern Pines - Jan. 14, 2004

#### Benefits

- ➔ Utilizing existing system
- ➔ More efficient use of tax dollars
- ➔ Minimizes environmental impact
- ➔ More travel options
- ➔ More holistic approach to planning
- ➔ Timeliness of improvements
- ➔ Promotes NCDOT/DENR streamlining concept
- ➔ Stimulates economy & Econ. development in under-served rural areas

### Southern Pines - Jan. 14, 2004

#### Challenges

- ➔ Local gov't buy-in and support
- ➔ Getting local gov't along corridors to work together
- ➔ Preserving small town character
- ➔ Funding, buy-in and cooperation to the total concept
- ➔ Protect viewsheds by prohibiting visual sign pollution
- ➔ Changing cultural expectations
- ➔ Financing and flexibility--deal with Equity Formula restrictions
- ➔ Accommodate development w/o loss of capacity
- ➔ Design more bikepaths and recreational corridors

### Southern Pines - Jan. 14, 2004

#### Challenges con't

- ➔ Assuring the corridors are part of a truly multi-modal transportation system
- ➔ Conflicts with property rights along existing routes

### Southern Pines - Jan. 14, 2004

#### Big Ideas

- ➔ Think outside the box
- ➔ Give DOT greater flexibility
- ➔ Promote and educate for buy-in
- ➔ More emphasis on multi-modal planning
- ➔ Use rail for freight movements; use highways for passenger and local/commercial movement
- ➔ Need RPOs and MPOs and DOT to sell it to the locals
- ➔ Sell the idea, create broad levels of buy in and then funding will be easier to get

### Southern Pines - Jan. 14, 2004

#### Big Ideas con't

- ➔ Allow DOT control for Corridor management--buying property and managing access
- ➔ Change legislation to amend Equity Formula
- ➔ Link highways to encourage Walt Disney or Busch Gardens to come to NC
- ➔ Utilization of dynamic message signs to alert drivers to upcoming changes

### Southern Pines - Jan. 14, 2004

#### Questions

- ➔ Where will funding come from?
- ➔ How long and how will we implement?
- ➔ How does this fit with local land use plans?
- ➔ What will corridors look like? Standards for Statewide vs. Regional
- ➔ How is the selection process maintained or changed due to political clout or influence in that area?
- ➔ How do you ensure commitment to goals? Will this concept stand the test of time given changes in Administration?
- ➔ Will future state and federal funding be tied to Strategic Corridors?

### Southern Pines - Jan. 14, 2004

#### Comments from the Maps

- ➔ Will need to control access to avoid building bypasses around bypasses
- ➔ Complete the gaps, ensure interstate movements b/w the states
- ➔ Consider intermodal system improvements
- ➔ Will additional Federal money come for I-73 and I-74
- ➔ Remove county boundaries from the Map--makes map too busy

### Southern Pines - Jan. 14, 2004

#### Comments from the Maps

- ➔ Add NC 211 from Southport to US 17--regional corridor
- ➔ Enhance US 70 from Morehead City to Raleigh
- ➔ NC 20 from Raeford to I-95--regional corridor
- ➔ Extend US 52 as green line to South Carolina
- ➔ NW from Fayetteville to Raleigh--NC 55 and US 401
- ➔ NC 24/27 needs to be statewide corridor from Fayetteville to Charlotte
- ➔ Enhance Wilmington to Charlotte on US 74



### Southern Pines - Jan. 14, 2004

#### Comments from the Maps con't

- 4-lane and limited access from Raeford to Lauringburg
- NC 24/27 Bypass, connections at Fayetteville
- Bypass around Spring Lake--I-295 to NC 87

### Greensboro - Jan. 15, 2004

#### Benefits

- Quality of Life
  - breathing cleaner air, reduces congestion
- Supportive of efficient future land use management
- Assigns true priorities of the state--defines needs without politics
- Shift budget emphasis from "spending" mindset to investment-oriented thinking
- Safety
- Better partnerships, better involvement with Localities
- Facilitates better connections b/w modes

### Greensboro - Jan. 15, 2004

#### Benefits con't

- Needs based, more factual decision-making process
- Access is better managed
- Invests in existing infrastructure
- Provides choices, more options to citizens

### Greensboro - Jan. 15, 2004

#### Challenges

- How do we interface Land Use and Transportation better?
- Add Maint funds to keep up corridors, maintain high level of service
- Reducing time for construction--streamline project development time
- Integrating this concept with other modes of transportation
- When is enough, enough, no more roads!
- Funding over time and escalating costs to build roads
- Making sure the concept meets the users needs
- Transportation fiscal crisis will make it difficult to change the investment focus

### Greensboro - Jan. 15, 2004

#### Challenges

- Regulatory challenges--greater commitment
- Big challenge for funding--balancing state and local needs
- Economic development pressures vs. systems needs
- Equity Formula needs to be reevaluated to take needs such as Econ. Develop and VMT into account
- Changes old habits--car pooling and such for the future
- Develop, retain & maintain a transportation professional workforce
- In corridors, will level of the authority to restrict access be greater?
- Meeting our commitment to the environment while delivering an effective transportation facility

### Greensboro - Jan. 15, 2004

#### Big Ideas

- Focus on demand management; changing work culture as opposed to keep providing supply
- Have the same planning boundaries for every sector of gov't
- Make the best use of money by transferring Rail funding to needed highway improvements
- Dedicate resources at state/federal level -- have resource agencies focus exclusively on Strategic Corridors
- There is an opportunity for you to make this successful by getting more local input up front
  - Every citizen needs to understand--find a way to promote this

### Greensboro - Jan. 15, 2004

#### Big Ideas con't

- ➔ As you plan for these corridors ensure Aesthetics is of primary importance
- ➔ Local option and regional option funding sources--find new sources of funding
- ➔ Incentives to business and ridesharing on the demand management side
- ➔ Why not use NCMIN to refocus responsibility within state, regional and local ownership and roles
- ➔ Consistent cross-section across long distance routes
- ➔ Strategic Bike Corridors
- ➔ Closer collaborative planning with local officials is essential for success

### Greensboro - Jan. 15, 2004

#### Big Ideas con't

- ➔ NCDOT has to be held accountable for delivering projects as promised
- ➔ Create separate fund for construction and maintenance of Strategic Corridors
- ➔ Exempt Strategic Corridors from the Equity Formula
- ➔ Local areas/regions need on-going input in Corridor Selection
- ➔ Gas Tax increase to pay for Strategic Corridors

### Greensboro - Jan. 15, 2004

#### Questions

- ➔ How will this interface with TIP funding?
- ➔ Funding to enhance facilities?
- ➔ Will this initiative divert money from other projects & cause delays in the TIP, esp. those not deemed strategic?
- ➔ Funding Interstate facilities?
- ➔ How would adoption of this Concept affect funding?
- ➔ What will be done to move this from a study to implementation?
- ➔ What type of actions will need to be taken to ensure timely implementation?
- ➔ How often would the concept be updated?

### Greensboro - Jan. 15, 2004

#### Questions con't

- ➔ How do we maintain integrity when Econ. Development is involved?
- ➔ How do routes get added to the Strategic Corridors & TIP?
- ➔ How can we integrate the Land Use & Transportation issue?
- ➔ What can be used as an incentive for State and Local land use planning?
- ➔ How do we assure Strategic Corridors addresses our AQ problems?
- ➔ How will NCDOT address non-quantified factors--such as social and human factors?
- ➔ What are the impacts to these facilities if they are improved economically and socially?

### Greensboro - Jan. 15, 2004

#### Questions con't

- ➔ What will we do to address secondary roads carrying high volumes of traffic?
- ➔ Loops promote sprawl?
- ➔ How do you do this w/o increasing vehicle miles?
- ➔ Political ramifications?
- ➔ What is being done to promote Demand Management?

### Greensboro - Jan. 15, 2004

#### Comments from Maps

- ➔ More detail needed in most urban areas
- ➔ Study Direct route b/w Danville and Hillsborough
- ➔ US 70 as a reliever route
- ➔ US 64 convert to I-40 (signs and standard of service)
- ➔ NC 87 in Alamance County to US 64 in Pittsboro
- ➔ NC 68, and airport access issue
- ➔ Regional designation may need to be revised/restudied
- ➔ Stokes County connector US 220 to US 52
- ➔ NC 109 from Winston-Salem to Thomasville



### Greensboro - Jan. 15, 2004

#### Comments from Maps con't

- ➔ US 421 to Bristol
- ➔ I-40 -- Bryan Blvd to Sandy Ridge Road
- ➔ Add Battleground Rd through Greensboro and High Point Rd
- ➔ Wendover through Greensboro
- ➔ NC 87 From Burlington to Reidsville
- ➔ NC 62 in Alamance County

### Williamston - Jan. 22, 2004

#### Benefits

- ➔ Makes long distance travel easier
- ➔ Improves quality of life
- ➔ Promotes growth, levels the playing field, not just catering to big businesses
- ➔ A better way to plan--a plan for development vs. shotgun approach
- ➔ A better utilization of limited dollars
- ➔ Aesthetically pleasing corridors
- ➔ Long term will create more jobs and access to Jobs

### Williamston - Jan. 22, 2004

#### Benefits con't

- ➔ Improves military movement b/w Eastern seaboard ports
- ➔ Land use brought to the table early on, forces conversations b/w developers, Commerce, DOT

### Williamston - Jan. 22, 2004

#### Challenges

- ➔ Funding, funding, & funding--do something to improve Equity Formula
- ➔ How will we pay for all this?
- ➔ Politics & its affect on decision-making
- ➔ Access for industry on fully controlled freeways
- ➔ Provide a voice for communities in less populated areas
- ➔ Local buy-in, greater coordination with local gov't
- ➔ Coordination with other states
- ➔ Environmental challenges

### Williamston - Jan. 22, 2004

#### Challenges con't

- ➔ Being able to react to changing conditions--Ex. Navy Landing strip in Washington County
- ➔ Serve small towns & move traffic but don't isolate those same towns
- ➔ Project prioritization
- ➔ Port challenges

### Williamston - Jan. 22, 2004

#### Big Ideas

- ➔ Establish a stronger r/ship with NCCBI; use them to collect data
- ➔ Turn abandoned railway corridors into usable highway corridors
- ➔ Establish prominent safety features for the Corridors--truck rest stops, ITS, rumble strips
- ➔ Control Access and acquire ROW early on
- ➔ Tackle issue of true equity for the East
- ➔ Determine other Corridor Connectors to outlying areas

### Williamston - Jan. 22, 2004

#### Big Ideas con't

- ➔ Return on Investment--do it right up front, you will see cost savings later on environmental issues, maintenance, etc.
- ➔ Coordination of local land use plans with Regional Transportation Plans
- ➔ Tourism should be incorporated as a Criteria in evaluation process
- ➔ Add "connect to universities" as part of the Criteria
- ➔ Dark asphalt is hard to see in the rain--lighting on highways should improve
- ➔ Have one plan that we "stay the course" with

### Williamston - Jan. 22, 2004

#### Questions

- ➔ Where will the extra money come from to develop/buy access control?
- ➔ How do you balance funding when so much of system still needs to be expanded? How can we expand what we don't have?
- ➔ Will you support Tier 1 - Tier 2 counties?
- ➔ Who decides corridor priorities?
- ➔ How does this concept fit with TIP and remaining Intrastate projects?
- ➔ What will be the input opportunities throughout the process specifically for the business community?

### Williamston - Jan. 22, 2004

#### Questions con't

- ➔ How do you decide b/w local & state interest?
- ➔ How to balance competing interests of neighboring communities?
- ➔ How do you convince other states to "get on board"?
- ➔ How is this initiative coordinated with other modes?
- ➔ How will the Norfolk Port be incorporated into the Plan?
- ➔ When can we expect to see the actual improvements with this?

### Williamston - Jan. 22, 2004

#### Questions con't

- ➔ Who owns this Plan b/w DOC and DENR and DOT?
- ➔ How will we incorporate this idea into projects?
- ➔ Are new methods of construction on the horizon in planning or is "asphalt just asphalt"?
- ➔ How is the trend towards larger vehicles going to affect this?
- ➔ Who are the groups continually opposed to hwy const.?

### Williamston - Jan. 22, 2004

#### Comments from Maps

- ➔ Map is misleading--no indication of existing road types
- ➔ How do RPO corridor priorities apply?
- ➔ Keep pushing Virginia DOT to improve US 17
- ➔ Proposed corridors are acceptable and proper

### Williamston - Jan. 22, 2004

#### Comments from Maps con't

- ➔ Connection is needed from Greenville to NC 17
- ➔ NC 125 / NC 903 connector needed b/w Williamston & Greenville
- ➔ Highway US 264--should it be on the map, why / why not
- ➔ US 158 should be a Statewide Corridor
- ➔ Mid-Currituck Bridge--should it be included as a Strategic Corridor?
- ➔ Hwy 32 connection to US 64, Washington Co
- ➔ Where are the bridges that connect military over Neuse and Pamlico Rivers?

### **Williamston - Jan. 22, 2004**

#### Comments from Maps con't

- ➡ Also connection of "Ag-East" to Greenville
- ➡ Senator Sanford said--"we need a major corridor from Raleigh to Norfolk"
- ➡ Elizabeth City Coast Guard Station is a major military station
- ➡ US 17 East--no shortcut to I-95--no major east-west route
- ➡ What is the status of NC 97?

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# **FACILITY TYPE & CONTROL OF ACCESS DEFINITIONS**



**AUGUST 2005**



## INTRODUCTION

The NCDOT Facility Types and Control of Access Definitions document was prepared to create a set of easy to understand and consistent definitions for all roadways for NCDOT and its partners to use in the planning, design, and operations processes. The definitions are primarily based on the function of the roadway, level of mobility and access, and whether the facility has traffic signals, driveways, and/or medians. These definitions were developed from a committee comprised of members from the Federal Highway Administration and the following NCDOT branches: Traffic Engineering, Highway Design, Project Development, and Transportation Planning. The North Carolina Board of Transportation adopted these definitions on September 2, 2004 as a part of the Statewide Transportation Plan.

The facility type definitions are identical to those used in a Comprehensive Transportation Plan (CTP), with the exception of Thoroughfares. In a CTP, Thoroughfares are further broken down to Major Thoroughfares and Minor Thoroughfares. In this document, both Major and Minor Thoroughfares fall into the general Thoroughfares description.

The first section of this document provides descriptions of the different facility types with examples as they exist at the time this document was created. The facility types are listed in order of the level of mobility provided (highest to lowest). This is followed by the definitions of the different types of control of access and a comparison chart. The second section of this document provides illustrative examples that show various elements of each of the different facility types. These illustrations are not drawn to any particular scale.

This document was revised in August 2005 in order to simplify the facility type definitions. The original Expressway Type I and Type II definitions were consolidated into one Expressway definition. Similarly, the Boulevard Type I and Type II definitions were consolidated into one Boulevard definition.

An electronic version of this document is available at  
[http://www.ncdot.org/planning/tpb/shc/pdf/NCDOT\\_Facility\\_Types.pdf](http://www.ncdot.org/planning/tpb/shc/pdf/NCDOT_Facility_Types.pdf) (Adobe Acrobat Reader required).

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## NORTH CAROLINA DEPARTMENT OF TRANSPORTATION FACILITY TYPES

*Listed in Order of Mobility Function*

Adopted by the North Carolina Board of Transportation  
September 2, 2004

### Freeways



US 74 in Waynesville



US 264 east of I-95 (Wilson Bypass)



I-40/85 in Orange County



US 64 in Rocky Mount

- **Functional Purpose:** High Mobility, Low Access
- **AASHTO Design Classification:** Interstate or Freeway
- **Posted Speed Limit:** 55 mph or greater
- **Control of Access:** Full
- **Traffic Signals:** Not Allowed
- **Driveways:** Not Allowed
- **Cross-Section:** Minimum 4 Lanes with a Median
- **Connections:** Provided only at Interchanges; All Cross Streets are Grade-Separated
- **Median Crossovers:** Public-use Crossovers Not Allowed; U-turn Median Openings for Use by Authorized Vehicles Only when Need is Justified
- **Examples:** I-40, I-95, US 64 between Rocky Mount and Williamston, US 52 between Lexington and Mount Airy, US 70 between Kinston and New Bern, US 74 near Waynesville, US 264 east of I-95 (Wilson Bypass), US 1 between Raleigh and Sanford

## NORTH CAROLINA DEPARTMENT OF TRANSPORTATION FACILITY TYPES

*Listed in Order of Mobility Function*

Adopted by the North Carolina Board of Transportation  
September 2, 2004

### Expressways



US 221 (Marion Bypass)



US 117 north of I-40



US 74 west of Waynesville



US 64 in Apex

- **Functional Purpose:** High Mobility, Low to Moderate Access
- **AASHTO Design Classification:** Arterial
- **Posted Speed Limit:** 45 mph to 60 mph
- **Control of Access:** Limited or Partial
- **Traffic Signals:** Not Allowed
- **Driveways:**
  - Limited Control of Access** - Not Allowed
  - Partial Control of Access** - One Driveway Connection per Parcel; Consolidate and/or Share Driveways and Limit Access to Connecting Streets or Service Roads; Restrict to Right-in/Right-out
- **Cross-Section:** Minimum 4 Lanes with a Median
- **Connections:** Provided only at Interchanges for Major Cross Streets and At-Grade Intersections for Minor Cross Streets; Use of Acceleration and Deceleration Lanes for At-Grade Intersections
- **Median Crossovers:** Allowed; Alternatives to All-Movement Crossovers Encouraged; Minimum Spacing between All-Movement Crossovers is 2000 feet (posted speed limit of greater than 45 mph) or 1200 feet (posted speed limit of 45 mph or less)
- **Examples:** US 221 (Marion Bypass), US 220 in Rockingham County, US 321 south of Lenoir, US 117 north of I-40; US 74 (Independence Blvd) just east of I-277 in Charlotte, US 74 west of Waynesville, US 29 in Guilford County, US 301 north of Wilson, US 64 in Apex



## NORTH CAROLINA DEPARTMENT OF TRANSPORTATION FACILITY TYPES

*Listed in Order of Mobility Function*

Adopted by the North Carolina Board of Transportation  
September 2, 2004

### Boulevards



US 70 east of Clayton



NC 24 (Harris Boulevard) in Charlotte



US 74 near Ranger



Cary Parkway

- **Functional Purpose:** Moderate Mobility, Low to Moderate Access
- **AASHTO Design Classification:** Arterial or Collector
- **Posted Speed Limit:** 30 mph to 55 mph
- **Control of Access:** Limited, Partial, or None
- **Traffic Signals:** Allowed
- **Driveways:**
  - Limited Control of Access** - Not Allowed
  - Partial Control of Access** - One Driveway Connection per Parcel; Consolidate and/or Share Driveways and Limit Access to Connecting Streets or Service Roads; Restrict to Right-in/Right-out
- **Cross-Section:** Minimum 2 Lanes with a Median
- **Connections:** At-Grade Intersections for Major and Minor Cross Streets (Occasional Interchange at Major Crossing); Use of Acceleration and Deceleration Lanes
- **Median Crossovers:** Allowed; Minimum Spacing between All-Movement Crossovers is 2000 feet (posted speed limit of greater than 45 mph) or 1200 feet (posted speed limit of 45 mph or less)
- **Examples:** US 70 between Clayton and Smithfield, NC 55 (Holly Springs Bypass), NC 11 (Kenansville Bypass), NC 87 (Elizabethtown Bypass), US 158 (Murfreesboro Bypass), US 70 near Havelock, NC 24 (Harris Boulevard) in Charlotte, US 1 (Capital Blvd) in Raleigh, US 74 through Monroe, US 117 south of Goldsboro, US 70 east of Goldsboro, Cary Parkway, NC 132 (College Road) in Wilmington, Lochmere Drive in Cary, US 74 in Ranger

## **NORTH CAROLINA DEPARTMENT OF TRANSPORTATION FACILITY TYPES**

*Listed in Order of Mobility Function*

Adopted by the North Carolina Board of Transportation  
September 2, 2004

### **Thoroughfares**



Old Concord Road in Charlotte



Hillsborough Street in Raleigh



Shamrock Road in Charlotte



Trinity Road in Raleigh

- **Functional Purpose:** Moderate to Low Mobility, High Access
- **AASHTO Design Classification:** Collector or Local
- **Posted Speed Limit:** 25 mph to 55 mph
- **Control of Access:** None
- **Traffic Signals:** Allowed
- **Driveways:** Allowed with Full Movements; Consolidate or Share Connections, if possible
- **Cross-Section:** Minimum 2 Lanes; No Median; Includes All Facilities with a Two Way Left Turn Lane
- **Connections:** Primarily At-Grade Intersections
- **Median Crossovers:** Not Applicable
- **Examples:** *Old Concord Road in Charlotte, Hillsborough Street in Raleigh, Shamrock Road in Charlotte, Trinity Road in Raleigh*



## NORTH CAROLINA DEPARTMENT OF TRANSPORTATION CONTROL OF ACCESS DEFINITIONS

*Listed in Order of Mobility Function*

Adopted by the North Carolina Board of Transportation  
September 2, 2004

### **Full Control of Access**

Connections to a facility provided only via ramps at interchanges. All cross-streets are grade-separated. No private driveway connections allowed. A control of access fence is placed along the entire length of the facility and at a minimum of 1000 feet beyond the ramp intersections on the Y lines (minor facility) at interchanges (if possible).

### **Limited Control of Access**

Connections to a facility provided only via ramps at interchanges (major crossings) and at-grade intersections (minor crossings and service roads). No private driveway connections allowed. A control of access fence is placed along the entire length of the facility, except at intersections, and at a minimum of 1000 feet beyond the ramp intersections on the Y lines (minor facility) at interchanges (if possible).

### **Partial Control of Access**

Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways. Private driveway connections are normally defined as a maximum of one connection per parcel. One connection is defined as one ingress and one egress point. The use of shared or consolidated connections is highly encouraged. Connections may be restricted or prohibited if alternate access is available through other adjacent public facilities. A control of access fence is placed along the entire length of the facility, except at intersections and driveways, and at a minimum of 1000 feet beyond the ramp terminals on the minor facility at interchanges (if possible).

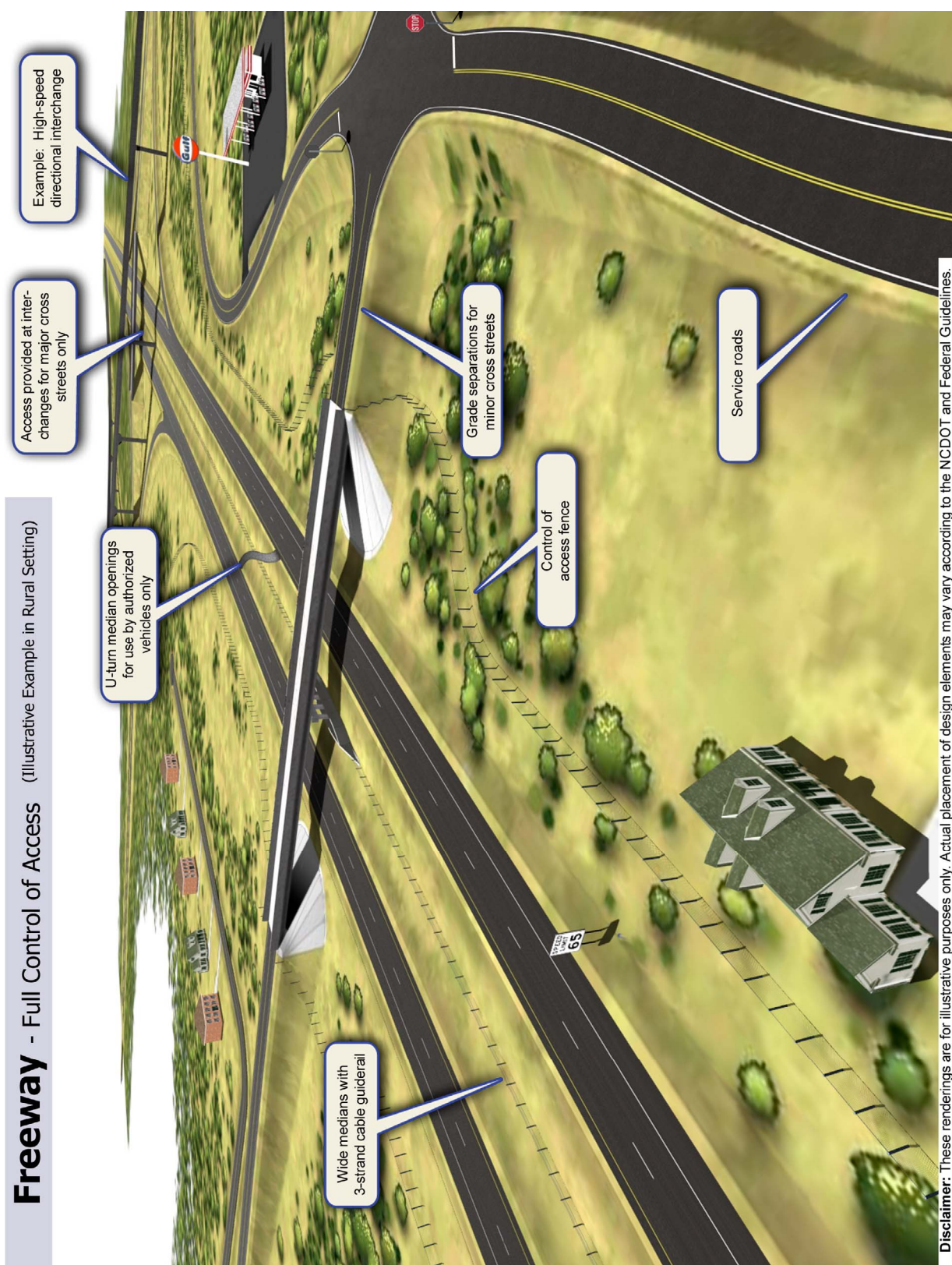
### **No Control of Access**

Connections to a facility provided via ramps at interchanges, at-grade intersections, and private driveways. No physical restrictions, i.e., a control of access fence, exist. Normally, private driveway connections are defined as one connection per parcel. Additional connections may be considered if they are justified and if such connections do not negatively impact traffic operations and public safety.

NCDOT FACILITY TYPES COMPARISON CHART

	Freeways	Expressways	Boulevards	Thoroughfares
<b>Functional Purpose</b>	High Mobility, Low Access	High Mobility, Low to Moderate Access	Moderate Mobility, Low to Moderate Access	Moderate to Low Mobility, High Access
<b>AASHTO Design Classification</b>	Interstate or Freeway	Arterial	Arterial or Collector	Collector or Local
<b>Posted Speed Limit</b>	55 mph or greater	45 mph to 60 mph	30 mph to 55 mph	25mph to 55 mph
<b>Control of Access</b>	Full	Limited or Partial	Limited or Partial	None
<b>Traffic Signals</b>	Not Allowed	Not Allowed	Allowed	Allowed
<b>Driveways</b>	Not Allowed	Limited Control of Access - Not Allowed  Partial Control of Access - One Driveway Connection per Parcel; Consolidate and/or Share Driveways and Limit Access to Connecting Streets or Service Roads; Restrict to Right-in/Right-out	Limited Control of Access - Not Allowed  Partial Control of Access - One Driveway Connection per Parcel; Consolidate and/or Share Driveways and Limit Access to Connecting Streets or Service Roads; Restrict to Right-in/Right-out	Allowed with Full Movements; Consolidate or Share Connections, if possible
<b>Cross-Section</b>	Minimum 4 Lanes with a Median	Minimum 4 Lanes with a Median	Minimum 2 Lanes with a Median	Minimum 2 Lanes; No Median; Includes Facilities with Two Way Left Turn Lane
<b>Connections</b>	Provided only at Interchanges; All Cross Streets are Grade-Separated	Provided only at Interchanges for Major Cross Streets and At-Grade Intersections for Minor Cross Streets; Use of Acceleration and Deceleration Lanes for At-Grade Intersections	At-Grade Intersections for most Major and Minor Cross Streets (Occasional Interchange at Major Crossing); Use of Acceleration and Deceleration Lanes	Primarily At-Grade Intersections
<b>Median Crossovers</b>	Public-use Crossovers Not Allowed; U-turn Median Openings for Use by Authorized Vehicles Only when Need is Justified	Allowed; Alternatives to All-Movement Crossovers Encouraged; Minimum Spacing between All-Movement Crossovers is 2000 feet (posted speed limit of greater than 45 mph) or 1200 feet (posted speed limit of 45 mph or less)	Allowed; Minimum Spacing between All-Movement Crossovers is 2000 feet (posted speed limit of greater than 45 mph) or 1200 feet (posted speed limit of 45 mph or less)	Not Applicable

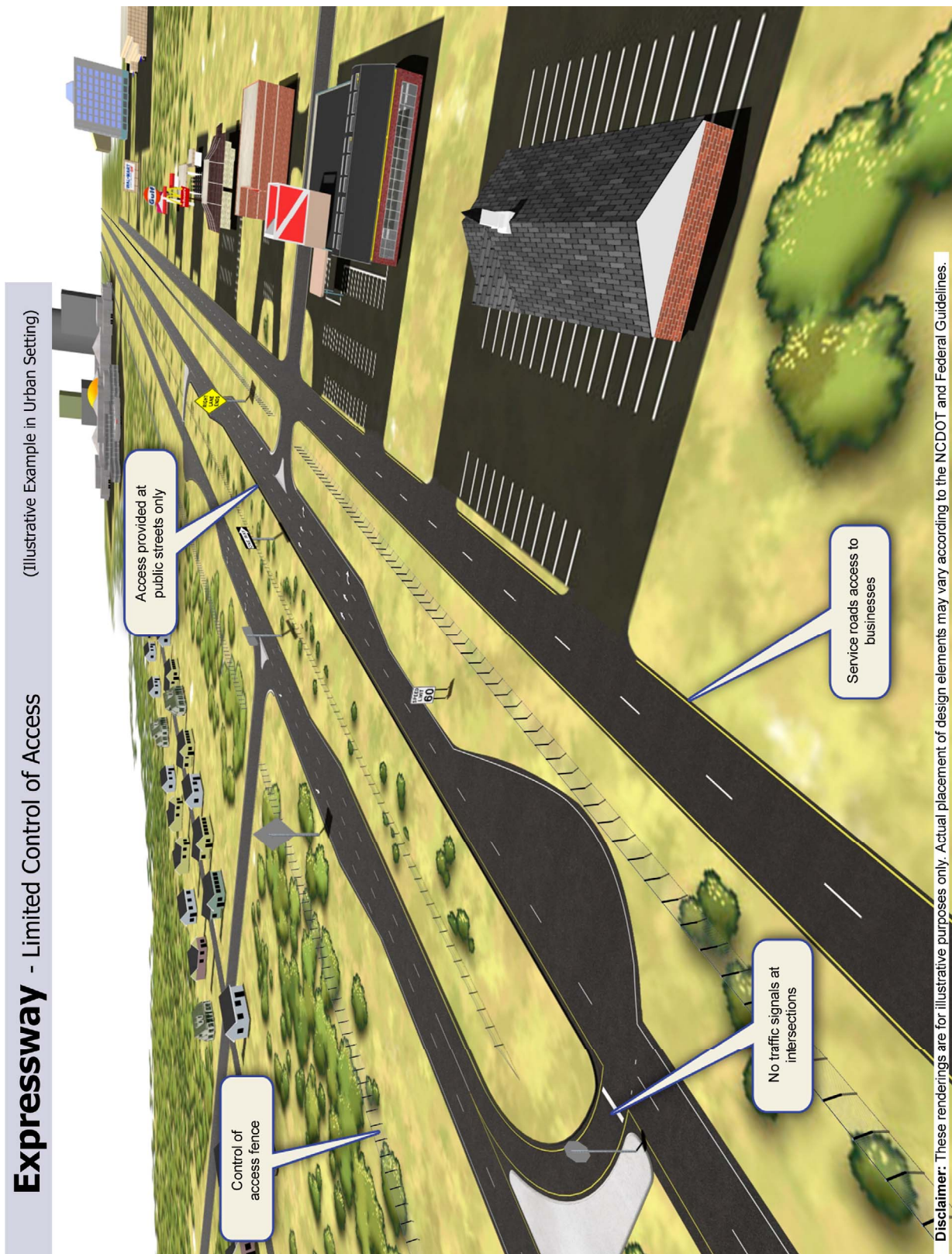




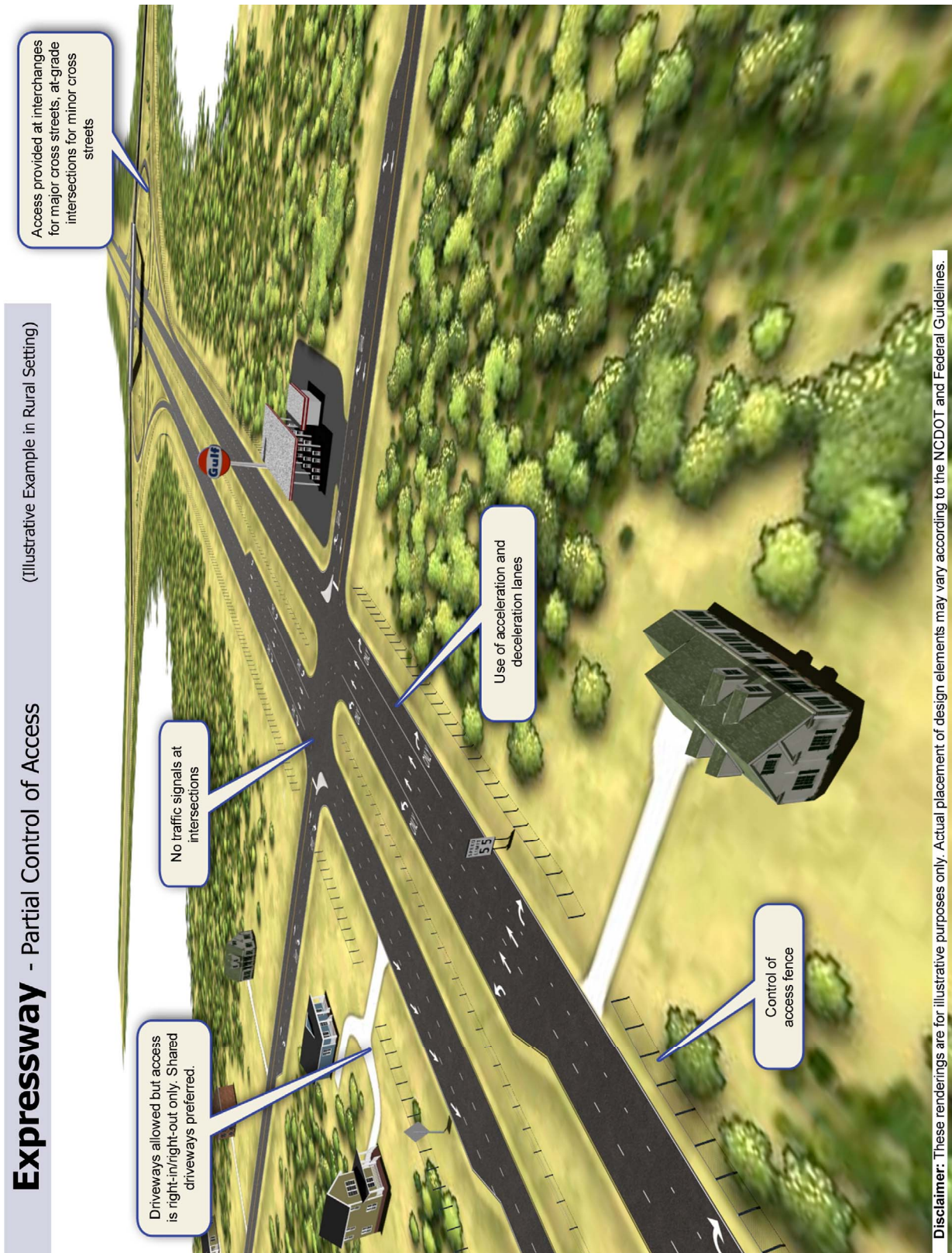




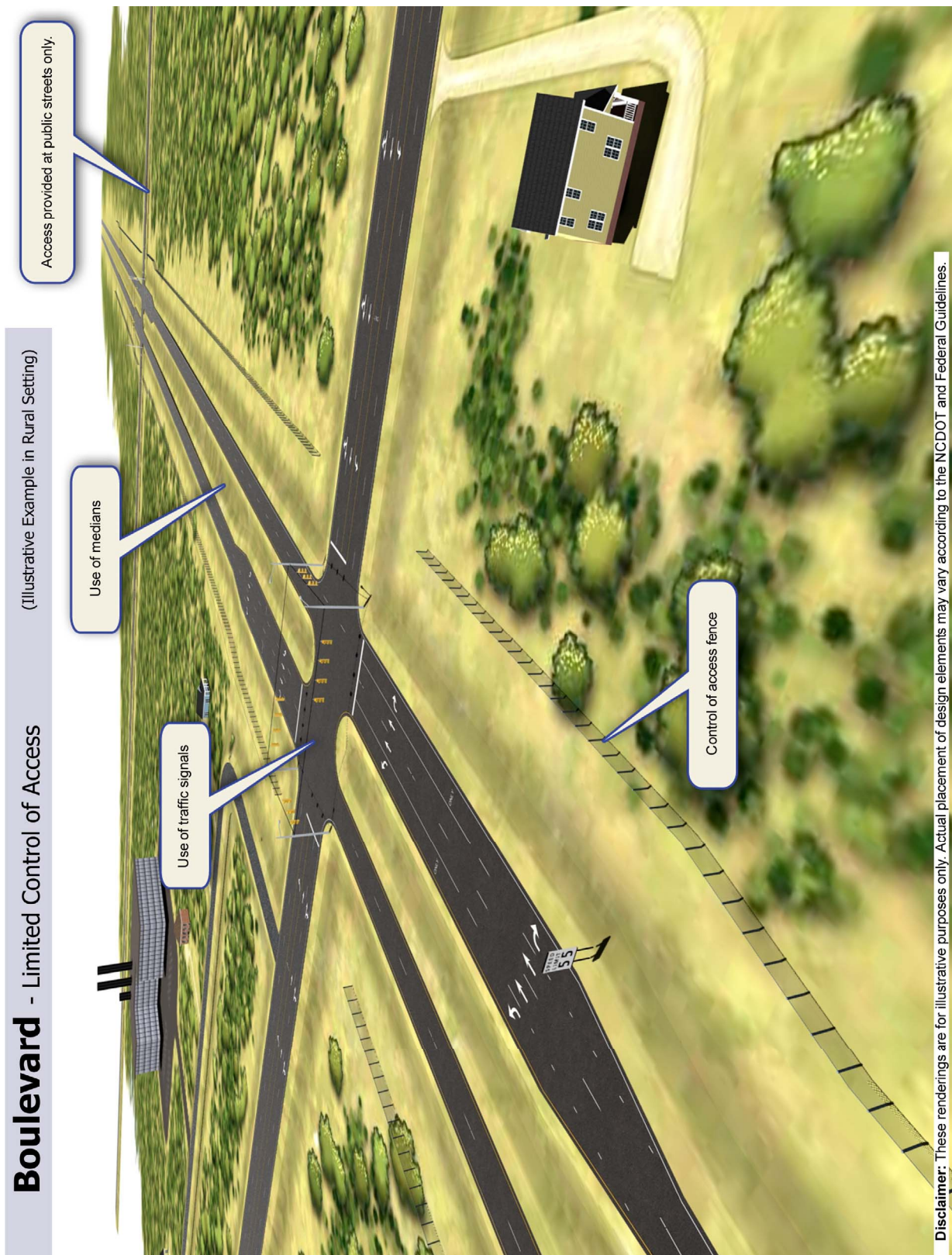














## Boulevard - Partial Control of Access

(Illustrative Example in Urban Setting)





## Thoroughfare - No Control of Access (Illustrative Example in Urban Setting)





## Thoroughfare - No Control of Access

(Illustrative Example in Rural Setting)





## REFERENCES

1. American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 4<sup>th</sup> Edition, 2001
2. North Carolina Department of Transportation (NCDOT), *Design Manual*, 2002
3. North Carolina Department of Transportation (NCDOT), *Policy on Street and Driveway Access to North Carolina Highways*, 2003
4. North Carolina Department of Transportation (NCDOT), *Median Crossover Guidelines*, 2004

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# Strategic Highway Corridors Concept Development Report



## Outside

### How will this initiative be implemented?

The Strategic Highway Corridors initiative will be implemented through a variety of different measures. These include:

- **Education.** Ongoing efforts are being made to educate all stakeholders about the initiative. Education needs to occur on a continual basis to ensure that those involved are aware of the latest activities and policies.
- **Long-Range Planning.** Local Comprehensive Transportation Plans will incorporate the long-term vision of the Strategic Highway Corridors initiative. Additionally, a series of corridor studies may be undertaken to define needs, issues and unique challenges of each corridor. These studies give all stakeholders an opportunity to be involved at the beginning of the planning process.
- **Project Planning and Design.** Projects along Strategic Highway Corridors will be developed in a manner to achieve the long-term vision and goals of the initiative.
- **Land Use.** Consistent and compatible land use decisions are needed to support the goals of the Strategic Highway Corridors initiative. Mechanisms will be developed to assist local jurisdictions in helping to protect mobility along the corridors.
- **Corridor Protection.** Managing development along Strategic Highway Corridors is essential for achieving the long-term vision for each facility. Tools, techniques and strategies will be identified for protecting the corridors, such as the use of access management.
- **Driveway Permits and Traffic Signals.** All driveway permits and traffic signal requests along Strategic Highway Corridors will be carefully examined for consistency with the long-term vision for the corridor. Driveway consolidation and sharing will be highly encouraged, and alternative solutions to traffic signals will be sought.

*The SHC initiative was developed with input from the public during forums held in 2003 and 2004. The initiative was adopted by the North Carolina Board of Transportation and endorsed by the Department of Commerce and the Department of Environment and Natural Resources in 2004.*



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Mobility & Connectivity

Economic Prosperity

Environmental Stewardship

### What is the Strategic Highway Corridors Initiative?

The Strategic Highway Corridors initiative seeks to identify, protect and maximize the use of highway corridors that play a critical role in regional or statewide mobility in an ongoing effort to enhance transportation, economic development and environmental stewardship throughout North Carolina.

### What are the goals?

- Protect North Carolina's taxpayer investment in critical highway corridors
- Enhance major corridor mobility within and to destinations just outside North Carolina
- Enhance connectivity of travel within and just outside North Carolina
- Partner with stakeholders and all vested agencies to create a clear vision for each corridor
- Influence the project level decision-making process to achieve broader goals through funding, project planning, design, access and land-use decisions
- Support a statewide vision and identification of a desired facility type—freeway, expressway, boulevard or thoroughfare—for each corridor

### How was the concept developed?

*The selection of the Strategic Highway Corridors focused primarily on four objective criteria:*

- **Mobility.** The corridor has significant traffic volumes and is vital to the state's and/or region's interest.
- **Connectivity.** The corridor provides a connection between major activity and service centers.
- **Interstate Connectivity.** The corridor provides a connection between existing and/or planned interstates.
- **Interstate Reliever.** The corridor currently serves, or has the potential to serve, as a reliever route to an existing interstate facility.

## Inside

### Freeways

- 55 mph or Greater
- Minimum 4 Lanes with Median
- Access Only Provided at Interchanges
- All Cross Streets are Grade-Separated
- No Traffic Signals
- No Driveways

### Expressways

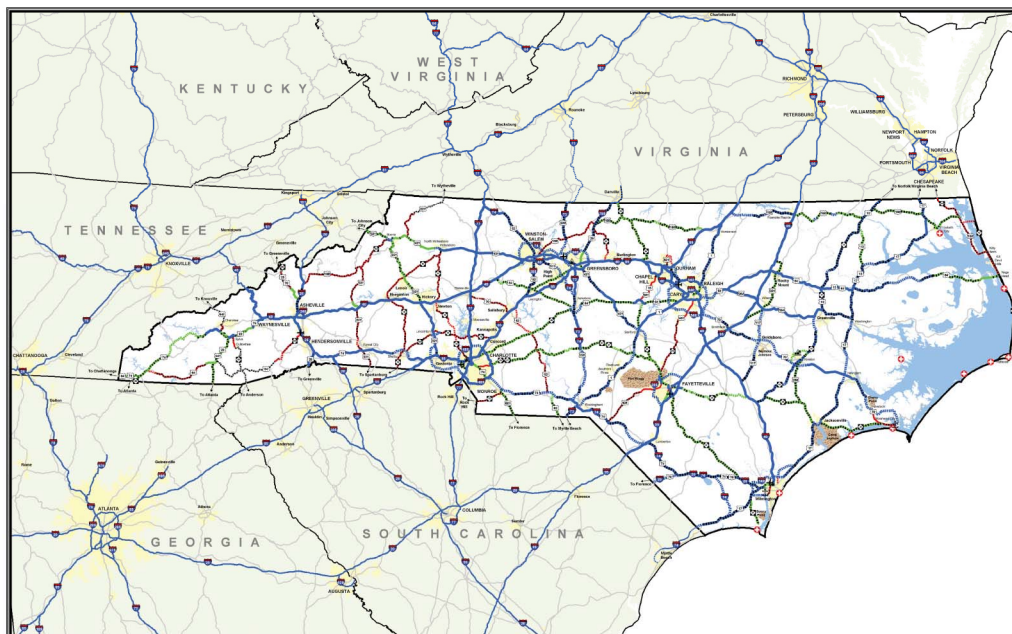
- Speed Limit: 45 to 60 mph
- Minimum 4 Lanes with Median
- Access at Interchanges for Major Cross Streets, At-Grade Intersections for Minor Cross Streets, Median Breaks for U-turns
- No Traffic Signals
- Limited/No Driveway Access Encouraged

### Boulevards

- Speed Limit: 30 mph to 55 mph
- Minimum 2 Lanes with Median
- At-Grade Access at Major and Minor Cross Streets
- Traffic Signals Allowed
- Limited Driveways Allowed but Access may be Restricted to Right-in/Right-out

### Thoroughfares

- Speed Limit: 25 to 55 mph
- Minimum 2 Lanes; No Median
- Uncontrolled Access onto facility
- Traffic Signals Allowed
- Driveways with Full Movements
- Continuous Left Turn Lanes optional



### Vision Plan

Adopted by The North Carolina Board of Transportation  
Plan Date: September 2, 2004



### Legend

- Freeways**
  - Existing
  - Needs Upgrade
  - Recommended
- Expressways**
  - Existing
  - Needs Upgrade
  - Recommended
- Boulevards**
  - Existing
  - Needs Upgrade
  - Recommended
- Thoroughfares**
  - Existing
  - Needs Upgrade
  - Recommended
- US/Other Route
- State Port
- Major Airport
- Intermodal Connector
- Coast Guard Station
- Major Military Base
- Urban Area
- Water Features

Scale: 0 10 20 30 40 50 Miles  
Prepared by:  
The North Carolina Department of Transportation  
Transportation Planning Branch  
Date: March 20, 2004

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